

# Annual Report 2015

## P A T I E N T S

Positive late-stage clinical study results on our investigational medicine ocrelizumab in multiple sclerosis give hope to people living with this disease who need more treatment options.

## P E O P L E

Keeping pace with our emerging market growth, we are aiming to increase the representation of people with established and developing region experience in key leadership positions.

## P A R T N E R S

New collaborations, such as the strategic partnership established with Foundation Medicine, help drive innovation and provide new possibilities in R&D and improved patient care.

# Contents

## ■ Overview

- 02 Who we are
- 04 What we do
- 06 2015 highlights
- 08 Chairman's shareholder letter
- 14 CEO's shareholder letter



## ■ Business review

- 22 Annual performance
- 24 Market environment

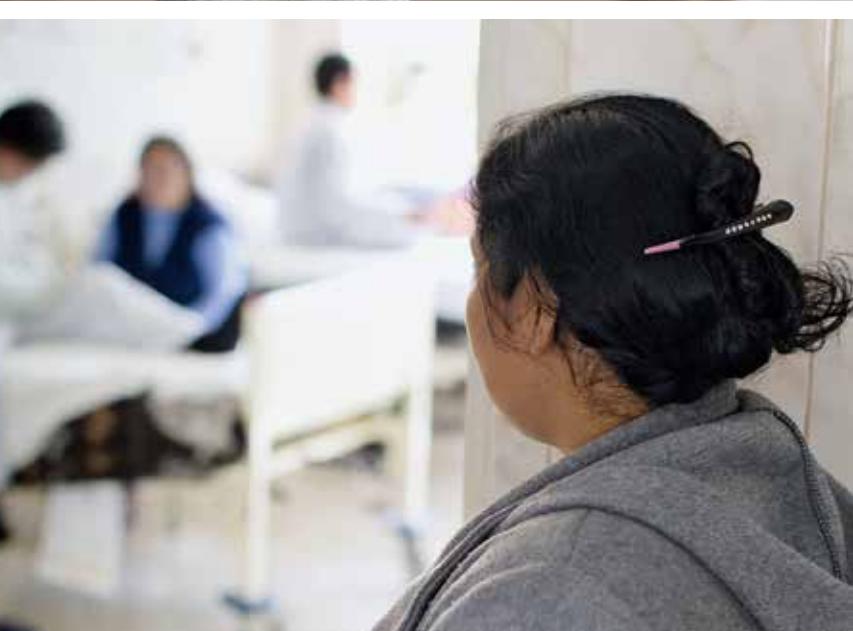


## ■ Diagnostics

- 32 Sales performance
- 34 Transforming laboratory practice

## ■ Pharmaceuticals

- 44 Sales performance
- 46 Key regulatory milestones



## ■ Innovation

- 54 R&D overview
- 56 Personalised cancer immunotherapy
- 64 Pharmaceuticals pipeline newsflow

## ■ Access to healthcare

- 82 Country-specific access planning
- 88 Innovative pricing and access models



## ■ Responsible business

- 94 A culture of compliance
- 97 Managing opportunity and risk
- 102 Putting patient safety first

## ■ People

- 106 Expanding diversity and inclusion
- 108 Committed to leadership



## ■ Environment and community

- 116 Safety, security, health and environment
- 132 Philanthropic engagement

## ■ Corporate governance report

- 140 Board of Directors
- 142 Corporate Executive Committee

## ■ Remuneration report

- 158 Principles
- 164 Remuneration components

## On the cover

By applying innovative cell culture methods, Christoph Patsch, PhD, a laboratory head from the Roche Innovation Center Basel, recreates human diseases in a dish. These patient-specific cells provide a valuable model to study the underlying disease biology and ultimately identify novel drug targets for therapeutic approaches.





# Who we are

*Innovation: it's in our DNA.  
We have always worked across disciplines and geographies to drive scientific discovery and redefine what is possible to improve patients' lives.*

We are working on understanding how diseases differ down to the molecular level. So we can develop new tests and medicines that prevent, diagnose and treat diseases that matter and bring them to the patients who need them. With our combined strengths in diagnostics and pharmaceuticals, our personalised healthcare strategy aims to fit the right treatment to the right patient.

As the world's largest biotech company, we develop breakthrough medicines, improving the standard-of-care across oncology, immunology, infectious diseases, ophthalmology and neuroscience. We are also the world leader in the *in vitro* diagnostics business. This track record allows us to build lasting and meaningful partnerships across the world with research academia and public healthcare institutions.

The founding families continue to hold the majority stake in the company. This stability allows for a tradition of sustainable thinking, so we can learn from setbacks and focus on lasting value for patients and society. We remain dedicated to the highest standards of quality, safety and integrity. Our legacy is based on respect for the individual, as well as the communities and the world we live in.

# 1  
in biotech, oncology, *in vitro* diagnostics and hospital market

29  
Roche medicines on the WHO Essential Medicines List

91,747  
employees in over 100 countries

CHF 48.1 bn  
in Group sales in 2015

# What we do

*We are a research-based, global healthcare company with combined strengths in pharmaceuticals and diagnostics.*

We develop, manufacture and deliver innovative medicines and diagnostic instruments and tests that help millions of patients globally. With a clear set of priorities, we aim to achieve sustainable growth and deliver value to all of our stakeholders.

We conducted a materiality analysis in 2014 at the corporate level amongst our key stakeholders to map out the most important topics related to these priorities.

As a result, we identified 21 material topics that stood out as highly relevant to us and to our key stakeholders, with a significant economic, environmental or social impact. These material topics are reflected in our business priorities and we have concrete actions related to them in our operational activities.\*

## Focus on patients



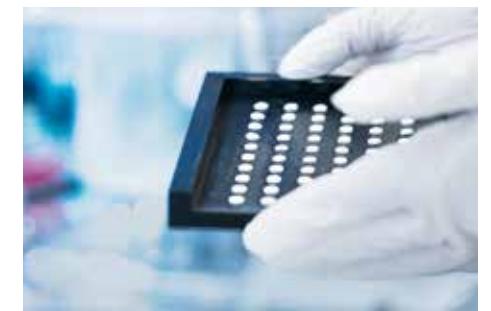
- Disease awareness and treatment education
  - Patient organisation support
  - Drug efficacy, safety and counterfeiting
  - Biosimilar safety
- For details, see Pharmaceuticals, Diagnostics, Access to healthcare and Responsible business chapters.

## Excellence in science



- Product portfolio strategy
  - Patent policies
  - Data transparency on clinical trials
- For details, see Innovation and Responsible business chapters.

## Personalised healthcare



- R&D pipeline strategy and personalised healthcare
- For details, see Pharmaceuticals, Diagnostics and Innovation chapters.

## Access to healthcare



- Sustainable healthcare
  - Growth strategy in emerging and developed markets
  - Pricing
- For details, see Access to healthcare chapter.

## Great workplace



- Employee engagement and talent retention
  - Compensation/benefits
  - Leadership commitments
  - Organisational effectiveness
  - Executive compensation
- For details, see People chapter and Remuneration report.

## Sustainable value



- Environmental responsibility
  - Compliance
  - Occupational accidents
  - Community engagement
  - Supply chain management
- For details, see Responsible business and Environment and community chapters.

# 2015 highlights

Partnership with **Foundation Medicine** on molecular information

FDA breakthrough therapy designation for **venetoclax** in two forms of leukemia

FDA breakthrough therapy designation for **emicizumab** (ACE910) in hemophilia A

**Carbon Disclosure Project** recognition on climate change mitigation

US approval of **Lucentis** in diabetic retinopathy

FDA breakthrough therapy designation for **Actemra** in systemic sclerosis

Positive phase III results for **ocrelizumab** in two forms of multiple sclerosis

FDA approval for **cobas HBV**, **cobas HCV** and **cobas HIV viral load tests**

US approval of **Alecensa** in a type of lung cancer

January

EU approval of **Avastin** in advanced cervical cancer

Positive phase II results for **atezolizumab** in advanced bladder cancer

EU approval of **Perjeta** regimen in early breast cancer

Launch of first Roche **PCR liquid biopsy test**

First national **HPV primary screening** tender won in Europe

US and EU approval of **Cotellic plus Zelboraf** in advanced melanoma

FDA breakthrough therapy designation for **atezolizumab** in a type of lung cancer

FDA clearance for **cobas flu A/B test** for use on our cobas Liat-System

**Dow Jones Sustainability Indices** leader in healthcare for the 7<sup>th</sup> year running

Positive phase III results for **Gazyva/Gazyvaro** in a type of non-Hodgkin lymphoma and leukemia

December



## Remaining sustainably successful

*Successful research and development of new tests and medicines and improving access to our medical solutions are key to the sustainable development of our business.*

Dear Shareholders,

In 2015, sales grew strongly across our two divisions, Pharmaceuticals and Diagnostics. This enabled us to post net income of CHF 9.1 billion, despite the substantial appreciation of the Swiss franc. We owe this primarily to the dedication and passion of our 91,747 employees. And I thank each and every one!

Unfortunately 2015 will also stand out in our memories as a year of wars, terror and epidemics. Many of these events affected me personally because employees, former colleagues or friends were harmed and because I know some of the crisis regions very well. As the father of five children, I also ask myself how we can continue doing justice to future generations. In the past 25 years, the global economy has doubled in size, as has the global ecological footprint. The latter is now many times greater than our environment can bear in the longer term.

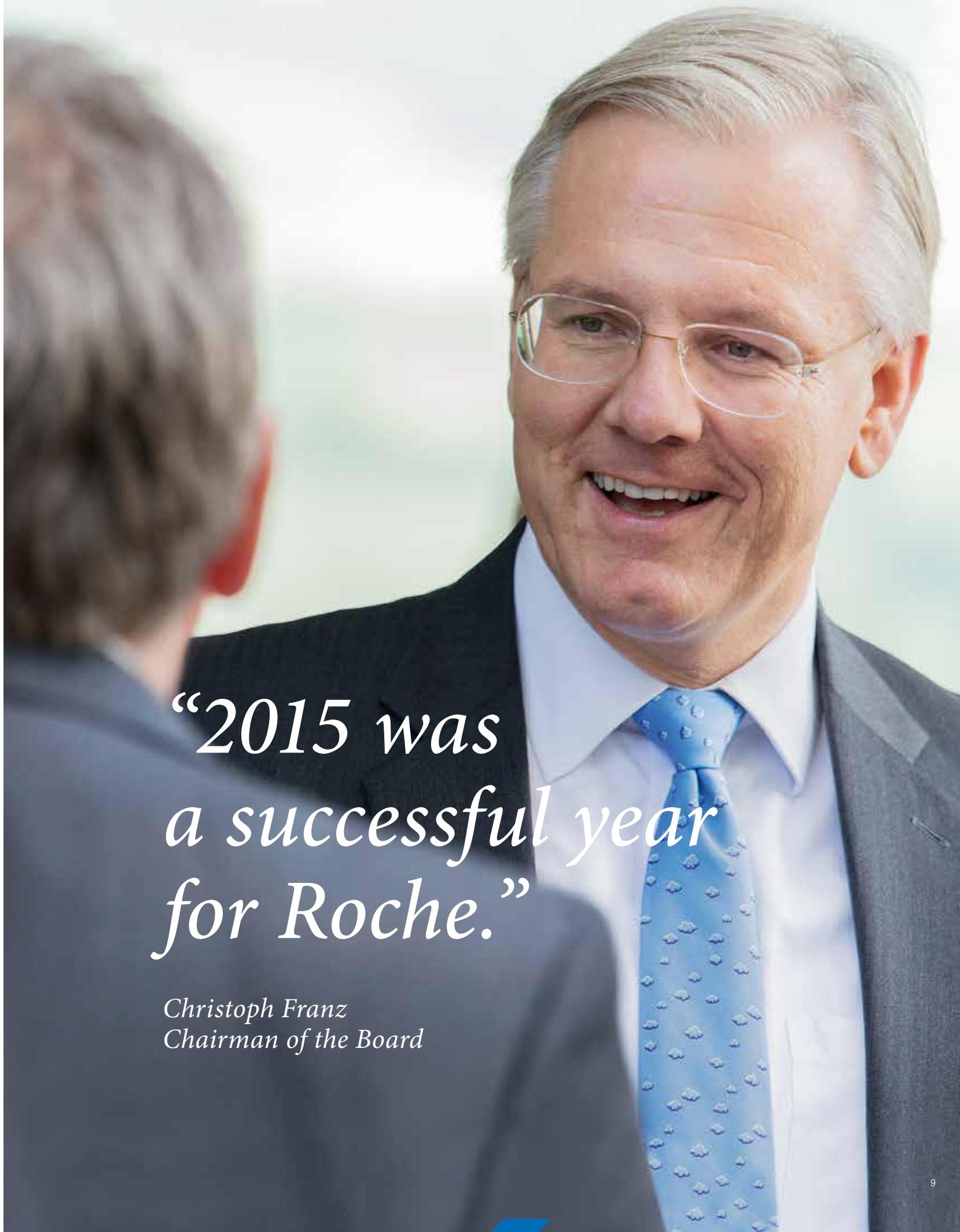
Against this background, I am encouraged by the 17 new 'Sustainable Development Goals' adopted by the Member States of the United Nations in September 2015. One of these goals is 'Good health and well-being.' As a global healthcare company, Roche can

and will continue to contribute to achieving this goal. Our main contribution is developing tests and medicines to meet some of the most urgent medical needs.

This is an area in which diagnostics, in particular, is likely to play a more significant role in the future. It enables our health to be managed more effectively—from prevention through targeted therapy to the monitoring of chronic disorders—and there is still a lot of untapped potential here.

As part of our strategic focus on long-term success, we are also conducting research in fields where the probability of success is not particularly high but the medical need is all the greater. We want to drive the progress in medical options available to patients with neurological diseases. In this endeavour, we recently produced some strong results in trials investigating the treatment of multiple sclerosis.

Furthermore, we are encouraged by the opportunities opened up by information technology. Our aim is to turn the wealth of medical data into valuable knowledge to aid research and the selection of therapies for the individual patient. We were



*"2015 was  
a successful year  
for Roche."*

*Christoph Franz  
Chairman of the Board*

therefore delighted to have finalised our partnership agreements with Foundation Medicine and Flatiron Health in the field of oncology. These relationships should lead to further improvements in outcomes for cancer patients.

It is important to us that our therapies reach all of the patients who need them. In some countries the latest medicines and diagnostics are freely available, in others even the most basic things are lacking. Take the example of HIV/AIDS. It is not enough to distribute medicines at cost price if there are insufficient healthcare workers, facilities and diagnostic tools to administer the therapies correctly. We are working to overcome these hurdles in partnership with public and private stakeholders. Here, I would like to mention the HIV Global Access Programme that we have launched with partners such as UNAIDS, the Joint United Nations Programme on HIV/AIDS, and the Clinton Health Access Initiative. The aim of the programme is to provide certain low-income countries with long-term supplies of HIV viral load tests.

The question of access to new products inevitably has an ethical component too. We take this issue seriously and want to help patients gain access to our products, including in countries with low purchasing power. Roche is one of the first companies to have established a differentiated pricing policy in developing regions. In 2015, we advanced our access planning strategy,

*"We have been named the most sustainable healthcare company in the world every year since 2009."*

resulting in improved insights into specific regional and national challenges at the local level and tailored plans to address them.

We are aware that in the world's poorest countries, patents can present a hurdle to the provision of basic medical care. This is why we do not register and enforce patent rights in these countries. In more affluent countries, however, patents create the incentives needed for high-risk investments. Once a patent has expired, society benefits too because important medicines become permanently available at a reduced cost. I am proud that 29 of the medicines we have developed now feature on the World Health Organisation Essential Medicines List, among them life-saving antibiotics, malaria and cancer medicines.

As an innovative healthcare company, we regard sustainability as both a responsibility and a growth driver. Recent recognition demonstrates that our efforts here are successful. Roche is the only healthcare company to have been awarded the maximum score by the non-profit organisation CDP (formerly the Carbon Disclosure Project) in its leading ranking of companies' responses to climate change. And for the seventh time in a row, Roche has been identified as the most sustainable healthcare company in the Dow Jones Sustainability Indices.

These awards do not mean that we are satisfied with the status quo. We must renew our efforts every day so that we can stay ahead of the game and live up to our strong commitment to being a sustainable company. That applies to everything we do.

Ladies and gentlemen, I look forward to welcoming you at the 98<sup>th</sup> Annual General Meeting (AGM) of Roche Holding Ltd on 1 March 2016. I would like to take this opportunity to mention two important items from the agenda.

In light of our strong performance and positive outlook, the Board of Directors is proposing a dividend increase to CHF 8.10 per share and non-voting equity security. Subject to your approval, this will be the 29<sup>th</sup> dividend increase in as many years.

In addition to the re-election of existing members, the AGM will see some changes on the Board of Directors. As you are already aware, Dame DeAnne Julius, a member of the Board of Directors since 2002, and Professor Dr Beatrice Weder di Mauro, a Board member since 2006, have decided not to stand for re-election in 2016. Both have made extraordinarily valuable contributions over many years to the company's successful development. On behalf of the Roche Board of Directors, I would like to extend our sincerest thanks to them.

I am delighted to be able to propose Julie Brown and Dr Claudia Süssmuth Dyckerhoff as new members of the Board of Directors. Both have a wealth of international management experience. As Chief Financial Officer of the British medical technology company Smith & Nephew, Julie Brown has extensive knowledge of sales and finance in the healthcare industry. Claudia Süssmuth Dyckerhoff is currently a Senior Partner at the consulting firm of McKinsey and Company, where she is Leader of the Healthcare Systems & Services Practice in Asia.

*"In light of our strong performance, we are proposing another dividend increase."*

Since the company was founded nearly 120 years ago, Roche has always questioned the status quo and set new standards.

It is a great pleasure for me to be part of such an innovative company. And I can assure you that we will continue to do everything in our power to ensure that your company continues to deliver scientific excellence for the benefit of patients in the future.

I would like to thank you, our shareholders, for your confidence in our company.

Christoph Franz  
Chairman of the Board

## Board of Directors

From left to right

**Bernard Poussot (1952)** C, E

**Paul Bulcke (1954)** B, E

**Peter R. Voser (1958)** C, E

**Prof. Dr Beatrice Weder di Mauro (1965)** B, E

**Dr Severin Schwan (1967)** F

**Dame DeAnne Julius (1949)** B\*, E

**Dr Christoph Franz (1960)** Chairman, C, D\*, E

**André Hoffmann (1958)** Vice-Chairman, Representative of the shareholder group with pooled voting rights, A, C\*, D, E

**Dr Andreas Oeri (1949)** Representative of the shareholder group with pooled voting rights, A\*, E

**Prof. Sir John Irving Bell (1952)** B, E

**Prof. Dr Richard P. Lifton (1958)** E

**Prof. Dr Pius Baschera (1950)** A, E

A Corporate Governance and Sustainability Committee

B Audit Committee

C Remuneration Committee

D Presidium/Nomination Committee

E Non-executive director

F Executive director

\* Committee chairperson

Roche Board of Directors on 31 December 2015



## A great year for our pipeline

*2015 was a successful year, as we made great strides innovating medicines for patients with difficult-to-treat diseases including multiple sclerosis, different types of cancer and hemophilia A.*

Dear Shareholders,

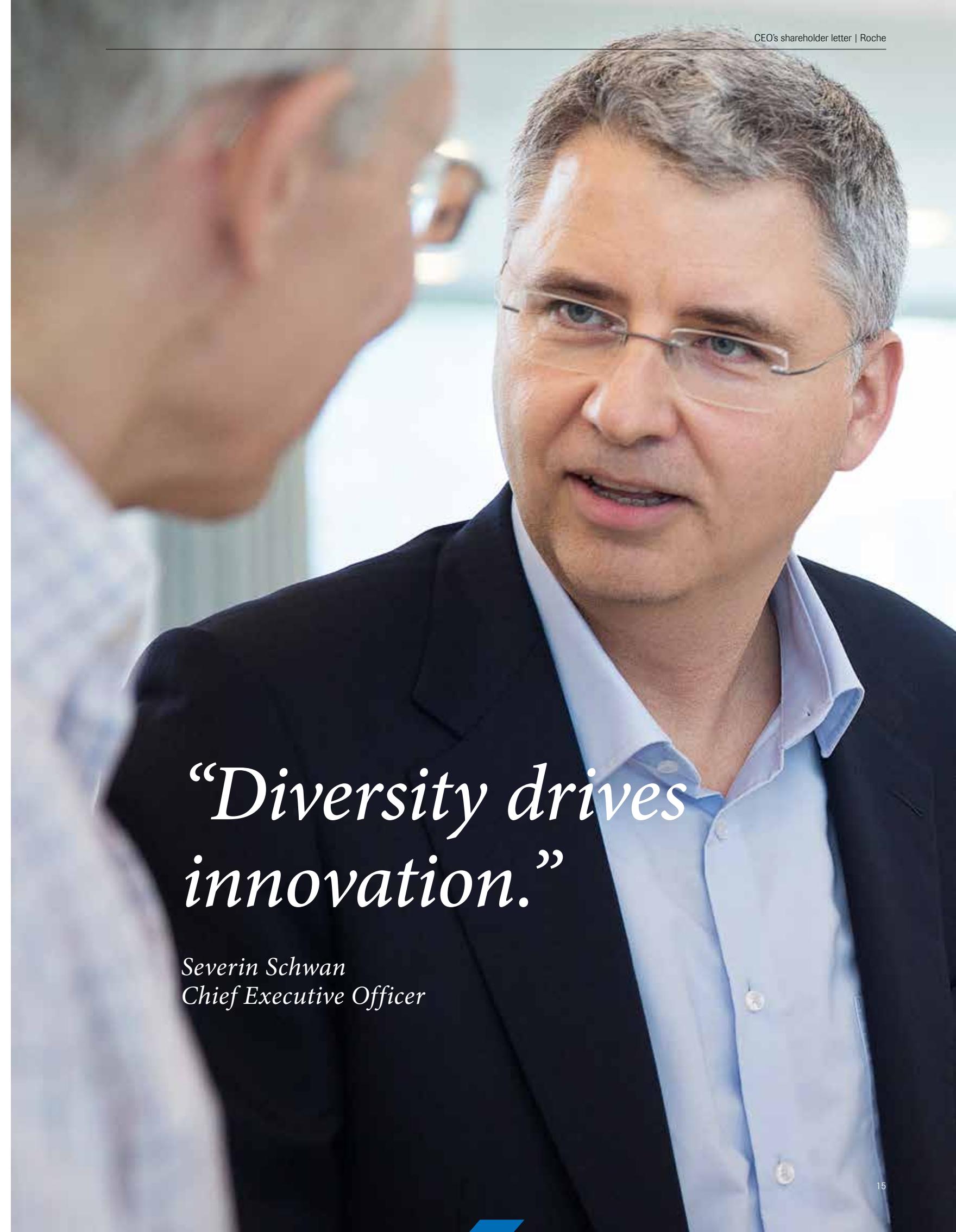
In a year that contained many highlights, one that particularly stood out for me was without question the phase III results which we presented on our investigational medicine ocrelizumab in multiple sclerosis. This is a devastating disease and current treatments vary in benefit and patients need better options. We have the potential to improve this situation, particularly in the primary progressive form of this chronic disease, for which no effective treatments are yet available.

In oncology, we made significant advances with our cancer immunotherapy portfolio, obtaining positive outcomes for bladder and lung cancer in pivotal trials of our lead candidate atezolizumab. We are really encouraged by the improved, sustained outcomes we are seeing for cancer patients and are investing strongly in this promising treatment approach. We are studying more than 20 investigational cancer immunotherapy medicines, nine of which are in clinical trials.

These scientific successes have been made possible by a solid financial foundation, which was further strengthened in 2015. With sales increasing by 5%,\* the Group's core earnings per share for 2015 were 7%\*\* higher than in the previous year. These positive results can be attributed to the continuing strength of our underlying business.

In the Pharmaceuticals Division, oncology and immunology contributed significantly to sales growth of 5%. Following our acquisition of InterMune in 2014, I am particularly pleased to report that Esbriet—a treatment for the fatal condition of idiopathic pulmonary fibrosis—is showing very good growth. Another highlight in 2015 was the approval of Cotellic in combination with Zelboraf for the treatment of advanced melanoma in both the US and Europe.

In the Diagnostics Division, the launch of new cobas instruments marks the achievement of a milestone in automated, integrated laboratory diagnostics. These new systems permit substantially higher test throughput and greater flexibility. They thus provide



***“Diversity drives innovation.”***

*Severin Schwan  
Chief Executive Officer*

\* All growth rates in this report are at constant exchange rates (average 2014). | \*\* This increase excludes the one-time benefit of CHF 428 million before tax related to the divestment of filgrastim rights in 2014.

an important benefit for healthcare providers, who are constantly striving for efficiency gains. The laboratory business contributed substantially to the Diagnostics Division's 6% sales growth.

Roche is also facilitating and improving laboratory work in tissue sample staining, which is central to the study and correct diagnosis of cancer. With its full automation and excellent staining quality, the newly launched Ventana HE 600 system enables pathologists to work with even greater safety, accuracy and efficiency.

We continued to make good progress with our product pipeline, with five major approvals and four FDA breakthrough therapy designations on our medicines in 2015. This is testament to the high level of innovation we are achieving in our research and development activities, which, with Genentech, Chugai and various external alliances, reflect a broad range of approaches and ideas. Take, for example, the early development phase results for emicizumab (ACE910)—a medicine developed by Chugai for the prophylactic treatment of people 12 years or older with hemophilia A—which are sufficiently promising for us to start a pivotal phase III programme.

*"Improving health outcomes requires all stakeholders—public and private—to work closely together to achieve sustainable solutions."*

We also received approval from the FDA for Alecensa (alectinib) for the treatment of a specific form of lung cancer. This medicine was created by Chugai and approved in Japan in 2014. Roche has simultaneously developed a companion diagnostic test to identify those patients who could benefit the most from Alecensa.

Lung cancer is just one example of a disease where a better understanding of the molecular processes in cancer cells has shed light on many possible different causes. Analysis of this molecular information is already yielding insights that are important both for research and development purposes and for the targeted treatment of patients. For Roche, innovation also means simplifying diagnostics for patients. By investing in research into blood-based cancer tests, also known as liquid biopsies, and developing the cobas EGFR Mutation Test v2, Roche is helping to minimise the need for intensive and stressful surgical procedures to collect tumour tissue samples.

Meaningful use of the large amounts of data from test results and clinical practice is set to take on an even more important role. This is why we are involved in pilot projects and partnerships such as those with Foundation Medicine and Flatiron Health, using high-quality healthcare data and advanced analytics to improve both the development of medicines and the scientific basis for treatment decisions.

We will only be able to realise these plans if we continue developing our business sustainably. An important part of our strategy is to improve patient access to our innovative tests and medicines.

Improving health outcomes requires all stakeholders—public and private—to work closely together to achieve sustainable solutions. I am convinced that together we will succeed in improving quality healthcare globally, while continuing to incentivise true medical innovation.

At Roche, each and every one of our 91,747 employees is committed to medical innovation which truly makes a difference to patients. As an innovation-driven company, our employees play a central role in our success. Encouraging diversity is an essential part of fostering new ways of thinking, challenging the status quo and finding new solutions.

Our talent management strategy is focused on giving our employees the opportunity to develop professionally and personally by gaining experience in different roles and countries. As a global company, with increasing activities in emerging markets, diversity in people and experience is becoming increasingly valuable.

I would like to thank all our employees for their personal contributions, and you, our shareholders, for your continued confidence in Roche.

*"As an innovation-driven company, our employees play a central role in our success."*

For the current year, we expect sales to grow low-to mid-single digit at constant exchange rates. Core earnings per share are targeted to grow ahead of sales at constant exchange rates. We expect to further increase our dividend in Swiss francs.

I remain very confident about Roche's long-term future. With science and medicine progressing at an unprecedented rate, and thanks to the new data analysis techniques available to us, we will continue to be in a strong position to develop new medicines and diagnostic tests for better patient care.



Severin Schwan  
Chief Executive Officer

# Corporate Executive Committee

From left to right

**Dr Michael D. Varney\* (1958)**

Head Genentech Research & Early Development (gRED)

**Roland Diggelmann (1967)**

COO Division Roche Diagnostics

**Dr Stephan Feldhaus\* (1962)**

Head Group Communications

**Silvia Ayyoubi (1953)**

Head Group Human Resources

**Dr Alan Hippe (1967)**

Chief Financial and IT Officer

**Dr Severin Schwan (1967)**

CEO Roche Group

**Dr Sophie Kornowski-Bonnet\* (1963)**

Head Roche Partnering

**Prof. John C. Reed\* (1958)**

Head Roche Pharma Research & Early Development (pRED)

**Osamu Nagayama\* (1947)**

Chairman and CEO Chugai

**Dr Gottlieb A. Keller (1954)**

General Counsel

**Daniel O'Day (1964)**

COO Division Roche Pharmaceuticals





## *Business review*

*Thanks to our strong business performance we are able to further enhance our innovation capabilities and deliver healthcare solutions which make a difference in patients' lives.*

CHF **48.1**  
*billion in Group sales*

## Roche reports strong results in 2015

### *Strong sales and profit growth*

In 2015, Group sales increased by 5%,\* driven primarily by pharmaceutical sales in the US and by strong demand for immunodiagnostic products.

In the Pharmaceuticals Division, sales rose 5% to CHF 37.3 billion. The increase was driven by the oncology portfolio (+8%), led by the HER2 medicines and Avastin. Sales of the immunology franchise grew by 24%, driven by the strong uptake of Esbriet, a new medicine for idiopathic pulmonary fibrosis, as well as higher sales of Actemra/RoActemra and Xolair. Sales of Pegasys declined due to competition from a new generation of treatments, whilst Valcyte/Cymevene and Xeloda faced generic competition as expected.

All regions contributed to the sales growth, with particularly strong performance in the US (+6%) and in Europe (+4%), which was driven by strong

demand for the HER2 medicines along with the strong uptake of Esbriet. Growth in the International region\*\* (+5%) was driven by key markets including Brazil (+10%) and China (+4%). In Japan, sales grew by 6%, driven by Avastin, the HER2 franchise and the new lung cancer medicine Alecensa.

In Diagnostics, sales grew 6% to CHF 10.8 billion, with Asia-Pacific (+15%) and Europe, Middle East and Africa (EMEA, +4%) as the main contributors. Sales were up in Latin America (+11%) and in North America (+3%), whilst sales in Japan were stable. The major growth driver was Professional Diagnostics, which grew by 8%. Sales in Molecular Diagnostics and Tissue Diagnostics increased 10% and 12% respectively. Diabetes Care sales decreased 3% due to continuing challenging market conditions, especially in the US.

#### Key figures 2015

	CHF millions 2015	CHF millions 2014	% change CER*	% change CHF
Group sales	48,145	47,462	+5	+1
Pharmaceuticals Division	37,331	36,696	+5	+2
Diagnostics Division	10,814	10,766	+6	0
Core operating profit excluding filgrastim***	17,542	17,636	+5	-1
Core EPS – diluted (CHF) excluding filgrastim***	13.49	14.29	+7	+2
IFRS net income <sup>†</sup>	9,056	9,535	+4	-5

\* All growth rates in this report are at constant exchange rates (CER; average 2014). | \*\* Asia-Pacific, EEMEA (Eastern Europe, Middle East, Africa), Latin America, Canada, Others. | \*\*\* Excluding the one-time benefit of CHF 428 million before tax related to the divestment of filgrastim rights in 2014. | † IFRS: International Financial Reporting Standards.



Pharmaceuticals growth was driven by increasing demand in oncology and immunology.

#### Profitability growth ahead of sales

Excluding a one-time income of CHF 428 million from the sale of filgrastim rights in 2014, core operating profit increased 7% at constant exchange rates. On the same basis, core earnings per share (CHF 13.49) were 7% higher.

IFRS net income increased 4% at constant exchange rates, but declined 5% in Swiss franc terms due to a major negative currency impact.

The Board of Directors has recommended a dividend increase to CHF 8.10 per share and non-voting equity security. Subject to approval by the Annual General Meeting of shareholders on 1 March 2016, this will be Roche's 29<sup>th</sup> consecutive annual dividend increase.

#### Product approvals and portfolio progress

In 2015, we made significant progress with our product pipeline. For our investigational medicine ocrelizumab, Roche announced strong data in both relapsing and primary progressive forms of multiple sclerosis. In addition, we presented promising results for our lead investigational cancer immunotherapy medicine atezolizumab in bladder and lung cancer. Roche also received EU and US approval for Cotellic plus Zelboraf to treat metastatic melanoma, and US approval for the cancer medicine Alecensa for a specific form of lung cancer.

In Diagnostics, Roche further extended its industry-leading product portfolio with seven test and eight instrument launches.

#### Strategic partnerships to improve patient care

In January 2016, Roche announced a partnership with Flatiron Health, an industry leader in real-world oncology data. Building on the collaboration with Foundation Medicine, begun in 2015, this agreement is another important milestone to drive our leadership in personalised healthcare. High-quality healthcare data and advanced analytics will improve both the development of medicines and the quality of treatment decisions. In 2015, Roche also acquired Ariosa Diagnostics, Signature Diagnostics, CAPP Medical and Kapa Biosystems, companies with strong expertise and technologies which will complement Roche's activities aimed at building a next-generation sequencing portfolio.

#### Outlook for 2016

In 2016, Roche expects sales to grow low- to mid-single digit at constant exchange rates. Core earnings per share are targeted to grow ahead of sales at constant exchange rates. Roche expects to further increase its dividend in Swiss francs.

## Embracing a dynamic market environment

### *Focused on innovation*

No matter how the market evolves, we remain fully committed to our central principles of putting the patient at the centre of everything we do, focusing on healthcare innovation, and working closely with external partners.

Our primary contribution to healthcare is developing innovative medicines and tests that improve the outlook for patients. In the next three years, we are planning launches for up to eight new medicines coming out of our labs aimed at surpassing standards in care.

As the market leader in immunodiagnostics, PCR and tissue diagnostics, and with increasing offerings in sequencing, we are also well-placed to deliver fully integrated testing solutions.

#### **Our lasting commitment to improving lives**

We have consistently grown through research and ground-breaking innovation. Over the past nearly 120 years, we are proud to have contributed to some major advances in healthcare. In 1969, we introduced

*29 Roche medicines are included on the WHO Essential Medicines List in 2015.*

<sup>1</sup> Boston Healthcare. The Value of Innovation in HIV/AIDS therapy, 2014.

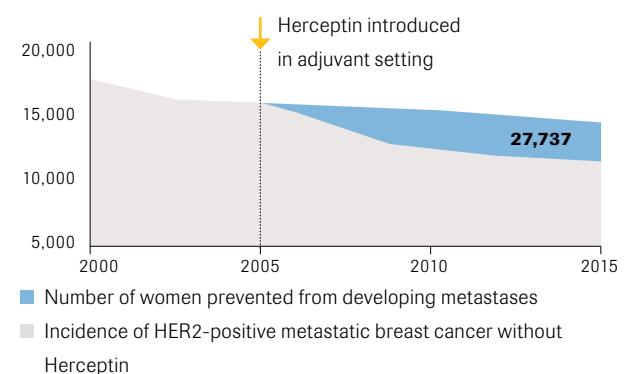
Bactrim, a medicine which is still used in treating bacterial infections. This medicine has been administered to about two billion people worldwide and continues to have an important impact in developing regions.

Treated with modern state-of-the-art therapy, HIV/AIDS is a chronic infection today, with a mortality rate which has dropped by 85%.<sup>1</sup> Roche has played an important role in this by developing innovative diagnostic tests, which has enabled personalised treatment strategies and breakthrough medicines, like the first-ever protease inhibitor.

As a leader in oncology, Roche has made important contributions to significantly lowering cancer mortality rates over the past 20 years. In the late 1990s, Roche's biopharmaceutical Herceptin represented a major step forward in the treatment of a particularly aggressive form of breast cancer. In 18 years, Roche has brought eleven cancer medicines with proven survival benefit to patients.

However, the battle against cancer is not over. Treatment is especially difficult in the advanced stages, when the cancer has metastasised. We remain fully committed to continuing to raise the bar in cancer patient outcomes, and see great potential to do so with our cancer immunotherapy and combination treatments.

#### **Adjuvant therapy with Herceptin helps to prevent breast cancer patients from developing metastases**



Almost 28,000 patients in five major EU countries were prevented from developing metastases because of the effect of adjuvant Herceptin (given after the main treatment, which is usually surgery).

We are also proud to be making progress outside of cancer in other difficult-to-treat diseases, such as multiple sclerosis (MS). There are currently limited treatment options for this debilitating disease. In 2015, we announced strong late-stage clinical study results which have the potential to significantly improve the way MS is treated.

#### **Molecular information enhancing R&D decisions**

Over the past few years, Roche has optimised the cooperation between its Pharmaceuticals and Diagnostics Divisions. Translating scientific progress into new tests and targeted medicines has shown impressive outcomes already, for example in our studies testing investigational cancer medicines.

Although the R&D processes are different, the two divisions share research facilities, technologies and discoveries when working together on internal projects. In the early stages of drug discovery, biomarkers can provide critical information on disease development. Diagnostics is involved early in the research projects

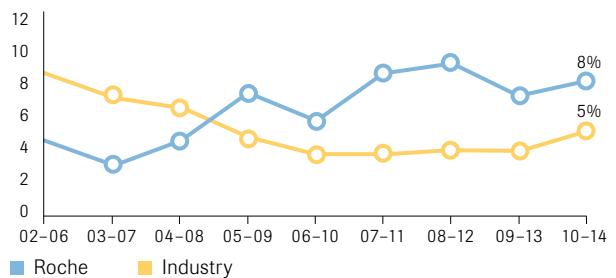
with the ultimate goal of developing reliable tests based on these biomarkers. This is central to our personalised healthcare strategy.

The game-changing arena of molecular information-driven R&D is opening more doors in medical innovation. Roche has recently entered into several strategic partnerships focused on genome sequencing and analysis, including Foundation Medicine, 23andMe and Human Longevity. By harnessing genome sequencing data, Roche is hoping to gain deeper insights into disease biology that will enable identification of new pathways, biomarkers and targets that can be used to improve drug discovery, develop better treatments and improve patient care.

Partnering is a critical part of our R&D strategy. In the healthcare industry, the vast majority of innovation happens outside of any single company. Truly innovative research is most likely to flourish in companies with strong in-house capabilities and a diverse and extensive network of partnerships.

Roche was one of the first healthcare companies to recognise the importance of external innovation and is currently running more than 200 partnerships across the Group.

#### **Roche's R&D productivity from 2002–2014**



Roche's R&D success rate is 8% above the industry average of 5%.

Based on KMR R&D General Metrics Data 2014.

### **Expanding access in emerging markets**

Inequalities in access to healthcare are increasing. We have a tremendous opportunity and commitment to overcome access barriers to our diagnostic tests and medicines around the world.

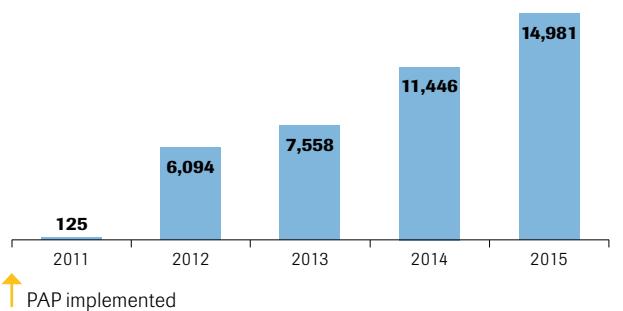
At Roche we strongly believe that it is critical to uncover the root causes, country by country, to be able to implement solutions that will make a meaningful difference on the ground. We have also established a wide range of policies, programmes and partnerships adapted to the needs of different local situations.

In 2011, we established a patient assistance programme (PAP) with the Cancer Foundation of China and other patient groups which has led to a significant increase in access to our breast cancer medicine Herceptin. However, it is not always about access to medicines but also about shortages of equipment and health education. To address the lack of trained diagnostic workers and laboratory capacity in South Africa, we run a Scientific Campus

*40,204 patients now have access to Herceptin through Roche's patient assistance programme in China.*

in Johannesburg to provide hands-on, certified training courses. The facility boasts five self-contained laboratories with the latest technological tools in chemistry, hematology, molecular biology, tissue diagnostics and sequencing.

#### **New patients receiving donated Herceptin in China through our PAP**



Number of patients on Herceptin significantly increased after implementation of Roche's PAP in China.

Although access barriers to healthcare are complex and multifaceted, pricing is one of the major areas of focus for many stakeholders. In the majority of markets, the price of a medicine is unit-based, undifferentiated and driven by the volume of therapy used.

We are committed to working with our stakeholders to find innovative pricing solutions, moving away from volume-based to value-based. Many pilot programmes have shown that these solutions can give payers and healthcare authorities more flexibility when it comes to reimbursement decisions.

#### **Increasing employee diversity**

As we estimate that nearly 50% of our growth will come from emerging markets in the coming years, we want to make sure our people have the right experience. We are committed to cultivating a more diverse talent pipeline to help our people and our company excel in this ever-changing business environment.

#### **Compliance is an integral part of our culture**

Whether it is in our approach to science, how we do business, or as a partner in society, we are committed to high ethical and social standards. Integrity is a fundamental part of how we do business at Roche.

With transparency in clinical trial information, governance of interactions with key stakeholder groups, and regular audits of internal manufacturing processes and systems, we go beyond the legal and regulatory requirements.

*Emerging markets will account for nearly 50% of our growth in the coming years.*

Compliance is more than a requirement at Roche, it is the basis of our license to operate and key to implementing our mission to improving patients' lives.

#### **Seizing the right opportunities**

Risk-taking, especially in our business, is a prerequisite to innovation, growth, improved business performance and sustainable returns. The key is to effectively manage risk to reduce negative uncertainties and to transform challenges into business opportunities.

We have a risk organisation in place which provides structure, support and guidance to proactively assess risks and opportunities, so as not to be caught unaware or unprepared. An inventory of major Group-wide risks is compiled and analysed on an annual basis. This analysis is published in the Group risk report and distributed for review to the Corporate Executive Committee and the Board of Directors to help shape strategic decisions.



# Diagnostics

We are the market leader in the in vitro diagnostics business and provide the largest number of test results, empowering physicians and patients to make informed health decisions.

15

billion tests

conducted in 2015 with Roche instruments worldwide

**O**ur tests provide critical information for faster and more precise decision-making in medical care and research and development.

Our commercially available *in vitro* diagnostic (IVD) tests are increasingly used by healthcare providers to screen, diagnose and monitor therapies. These tests are critical, even life-saving in emergency situations. Immunodiagnostic tests for example can help physicians make on-the-spot treatment decisions, such as for a person who may or may not be having a stroke.

In virology, there is increasing demand for our cervical cancer screening and diagnostic tests. Our non-invasive Harmony prenatal test is critically important for pregnant women, providing more accurate information without any risk for the baby and the mother. Meanwhile, with the increasing number of people with diabetes, our blood glucose meters, lancing devices and our insulin delivery systems are important tools to manage this condition effectively.

*Scientific information helps physicians make better treatment decisions and this will ultimately result in better outcomes for patients.*

#### **Better prediction of therapy outcomes**

Advances in science are driving our rapidly growing understanding of disease biology and patient responses to therapy. These new insights help to answer critical clinical questions, guiding treatment decisions to ensure effective and safe therapies. We are also getting better at collecting and analysing molecular information thanks to new technologies, such as deep gene sequencing. Molecular information enables physicians to better predict the outcome of therapeutic interventions and optimise treatment strategies.

Our understanding of lung cancer and its root drivers is a great example which demonstrates the benefit of molecular information. More than a dozen different mutations can cause this disease, potentially requiring very different therapeutic interventions. What was once described merely as a cancer of a specific organ can now be described on a molecular level. By pinpointing the mutation causing the lung cancer, physicians can make better treatment decisions, to ultimately improve outcomes for patients.



+6%

*increase in Diagnostics annual sales,  
contributing to the overall performance  
of the Roche Group.*

## Diagnostics deliver strong growth *Meeting different market requirements*

In Diagnostics, sales increased in 2015 by 6% to CHF 10.8 billion, with Asia-Pacific (+15%) and Europe, Middle East and Africa (EMEA, +4%) as main contributors of growth.\* Sales in China were up by 22%. Latin America recorded sales growth of 11%, and sales in North America increased 3%. In Japan, sales were stable.

Growth in Professional Diagnostics (+8%) was driven by the immunodiagnostics (+13%), clinical chemistry (+3%) and coagulation monitoring (+6%) businesses.

There was continued good growth in all regions, especially in Asia-Pacific, with sustained strong sales increases in China.

Sales increased 10% in Molecular Diagnostics, driven by growth in the underlying molecular business (+7%) and the sequencing business. Major contributions to sales growth came from virology (+14%) and HPV screening (+27%). Sales grew strongly in EMEA; in Japan a decline of sales resulted from the non-renewal of a tender in blood screening.

Tissue Diagnostics increased sales 12%, driven by 11% growth in the advanced staining portfolio, which includes immunohistochemistry reagents (+10%). The largest growth contributions came from North America and EMEA.

### Several major tenders secured

In the Netherlands, Roche was awarded a five-year contract by the National Institute for Public Health and the Environment for the implementation of the cobas HPV test as the first-line primary screening test in the national cervical cancer screening programme.

Additionally, we won major blood screening tender contracts in Thailand, Germany, the United Kingdom and Spain, as well as significant competitive tenders in virology in the United Kingdom, France and Germany. All of those tests will run on our next-generation cobas 6800 and cobas 8800 systems.

### Markets for diabetes business challenging

In Diabetes Care, sales declined 3%, due to continuing challenging market conditions for the blood glucose monitoring portfolio, especially in the US. Sales of the blood glucose meter Accu-Chek Mobile grew by 8% while sales of Accu-Chek Performa remained stable; Accu-Chek Aviva declined 2%. Sales of lancing devices increased 5%. This growth partially compensated the impact of the phasing out of older products. The insulin delivery systems business grew by 8%, driven by infusion systems and the newly launched Accu-Chek Insight, the next-generation insulin delivery system combining our insulin pump and a blood glucose meter.

Sales increased in the regions of Latin America and Asia-Pacific, but decreased in North America, EMEA and Japan. Overall, business efficiencies were gained with the implementation of specific measures initiated in 2013 to streamline processes and reduce costs.

**Sales of top selling products in 2015 (CHF millions)**



**cobas e 602**  
Immunodiagnostics



**Accu-Chek Aviva**  
Connect  
Diabetes Care



**cobas c 502**  
Clinical chemistry



**Ventana HE 600**  
Tissue diagnostics



**cobas 8800**  
Virology

**3,019**

**2,128**

**1,591**

**792**

**584**

+13%

-3%

+3%

+12%

+14%

\* All growth rates in this report are at constant exchange rate (average 2014).

## Transforming laboratory practice

### *Automation and connectivity*

Medical health testing is going through a dramatic paradigm shift. On the one hand, new testing technologies support large, centralised laboratories in providing medically relevant results with a constant increase in efficiency. On the other hand, point-of-care testing is gaining importance in ensuring immediate, precise decision-making on the spot. By offering increased testing capacity, the highest levels of automation, connected workflows as well as laboratory information systems, our instruments launched in 2015 support our customers in transforming their businesses.\*

For example, the cobas 8100 V2 automated workflow series is a fully-automated system covering all operational pre-analytical and integrated post-analytical steps in a laboratory, as well as sample transport. This technology enables full connectivity with analytical and archiving devices. It is designed for high-throughput laboratories and has a capacity of 1,100 samples per hour.

*In diabetes, the new cobas c 513 doubles the throughput to 400 results per hour.*

Doubling the already market-leading throughput of our current instrument from 200 to 400 results per hour is a key feature of the cobas c 513. This new instrument is used in laboratories for the analysis of HbA1c levels in blood samples from people with diabetes. The cobas c 513 is an essential tool for healthcare providers coping with the ever-increasing number of people with this condition.

Another key milestone in 2015, the FDA approved the cobas 6800 and cobas 8800 systems and the cobas HBV, cobas HCV and cobas HIV viral load tests. The fully automated systems offer the fastest time to results, the highest throughput and the longest walk-away time available among automated molecular platforms, providing laboratories both improved operating efficiency and flexibility to adapt to changing testing needs.

The new tests are the next generation of our viral load tests, which clinicians use to manage the treatment of people with hepatitis B or hepatitis C virus as well as HIV. The US approval follows the 2014 launch of these systems and tests in countries accepting the CE mark.\*\*



Using high-quality hardware and IT interaction allow better quality control in sample preparation, and ultimately leads to more reliable results.

#### **Fully automated, connected workflow**

The launch of the Elecsys HTLV-I/II immunoassay completes the blood screening portfolio in serology and provides the unique ability to combine pre-analytics, nucleic acid testing and serology testing for automated blood screening. The cobas 6800 or cobas 8800 systems can be connected in the workflow, making this combination the first of its kind in the market. These products are well received in the markets.

We also launched the VENTANA HE 600 system globally. A fully automated hematoxylin and eosin (H&E) tissue staining system, it enhances patient safety by avoiding cross-contamination, and produces exceptional staining quality.

This system improves workflow by eliminating the need to manually mix reagents. In a global test

conducted in 2015, more than 4,000 slides from laboratories in 12 countries were stained on the VENTANA HE 600 system and reviewed by 67 pathologists, with excellent results.

With the rapid advance of science and the resulting need for molecular information, laboratories increasingly utilise a number of technologies in parallel, including immunodiagnostics, clinical chemistry, tissue analysis, PCR-based technologies and gene sequencing. With our market-leading portfolio in immunodiagnostics, PCR and tissue analysis, and the progress made in sequencing over the last two years, we are at the forefront in supporting laboratories in their businesses.

\* [www.roche.com/products](http://www.roche.com/products) | \*\* Conformité Européenne, a symbol of free marketability in the European Economic Area.

## Broadening our portfolio

### *Multiple tests on connected systems*

With the many test approvals and launches this year, we broadened our industry-leading product portfolio. The new Elecsys HTLV-I/II immunoassay is a diagnostic test to help detect antibodies against human T-lymphotropic virus I or II infections in donated blood and routine diagnostic samples.

Designed for the needs of blood centres and clinical laboratories for reliable and efficient detection of this microorganism, the test enhances our blood screening portfolio in serology testing. This builds on our current offering, which is the most comprehensive in blood screening.

The improved cardiac point-of-care Troponin T test for the cobas h 232 system, available for countries accepting the CE mark, allows healthcare professionals to rapidly identify patients with a suspected acute myocardial infarction, also termed heart attack, with greater accuracy at low troponin concentration. This hand-held, point-of-care diagnostic system can be used in places where heart attack patients are often seen first, such as in an ambulance, emergency room, or a primary care/general practitioner's office.

*Our new cancer test allows for the detection of cancer in the blood of patients who are too sick for invasive tissue biopsy.*

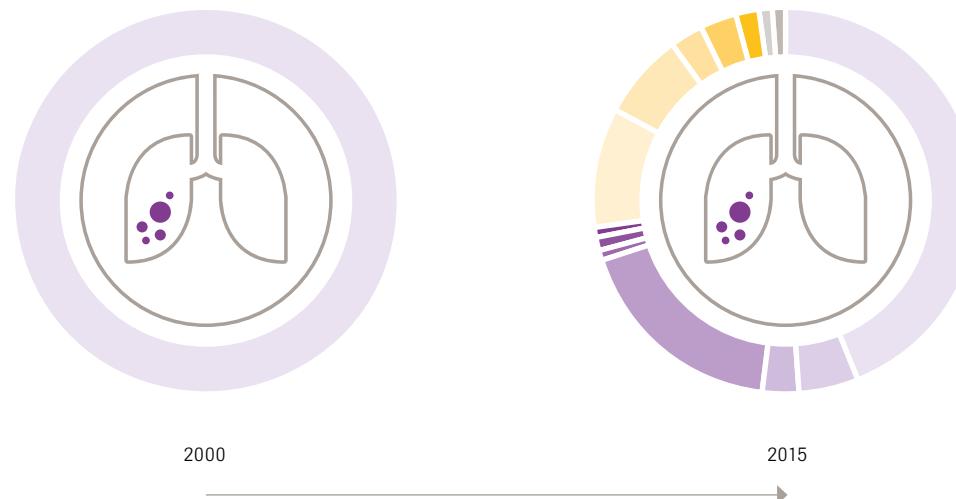
The Accu-Chek Connect, a fully integrated diagnostic system with an app, an online portal and an FDA-approved bolus calculator to improve diabetes self-management, was launched in the US.

The FDA has granted a Clinical Laboratory Improvement Amendments (CLIA) waiver for the cobas Strep A test for use on the cobas Liat system. *Streptococcus A* is responsible for a wide range of both invasive and non-invasive infections. It is the first CLIA-waived PCR test to detect Strep A in throat swab specimens.

The cobas Influenza A/B test for use on the cobas Liat system also received a CLIA waiver. These easy-to-use tests can now be used in non-traditional testing sites such as physician offices, emergency rooms and other healthcare facilities, and provide results at the point of care.

The cobas HIV-1, HBV, HCV and HCV Genotyping assays were launched in countries accepting the CE mark. These new molecular diagnostic assays increase the available menu on the cobas 4800 system, further improving the efficiency and flexibility that allow laboratories to deliver results for rapid clinical decisions.

The FDA has provided clearance for the cobas Cdifff test to detect *Clostridium difficile* (*C. difficile*) in stool specimens. The test provides accurate information



Multiple genetic mutations may cause non-small cell lung cancer. In the past, these variations could not be distinguished. Today, molecular information supports treatment decisions for effective, targeted therapies.

which assists clinicians in making timely treatment decisions and aids in the prevention of further infection in healthcare settings.

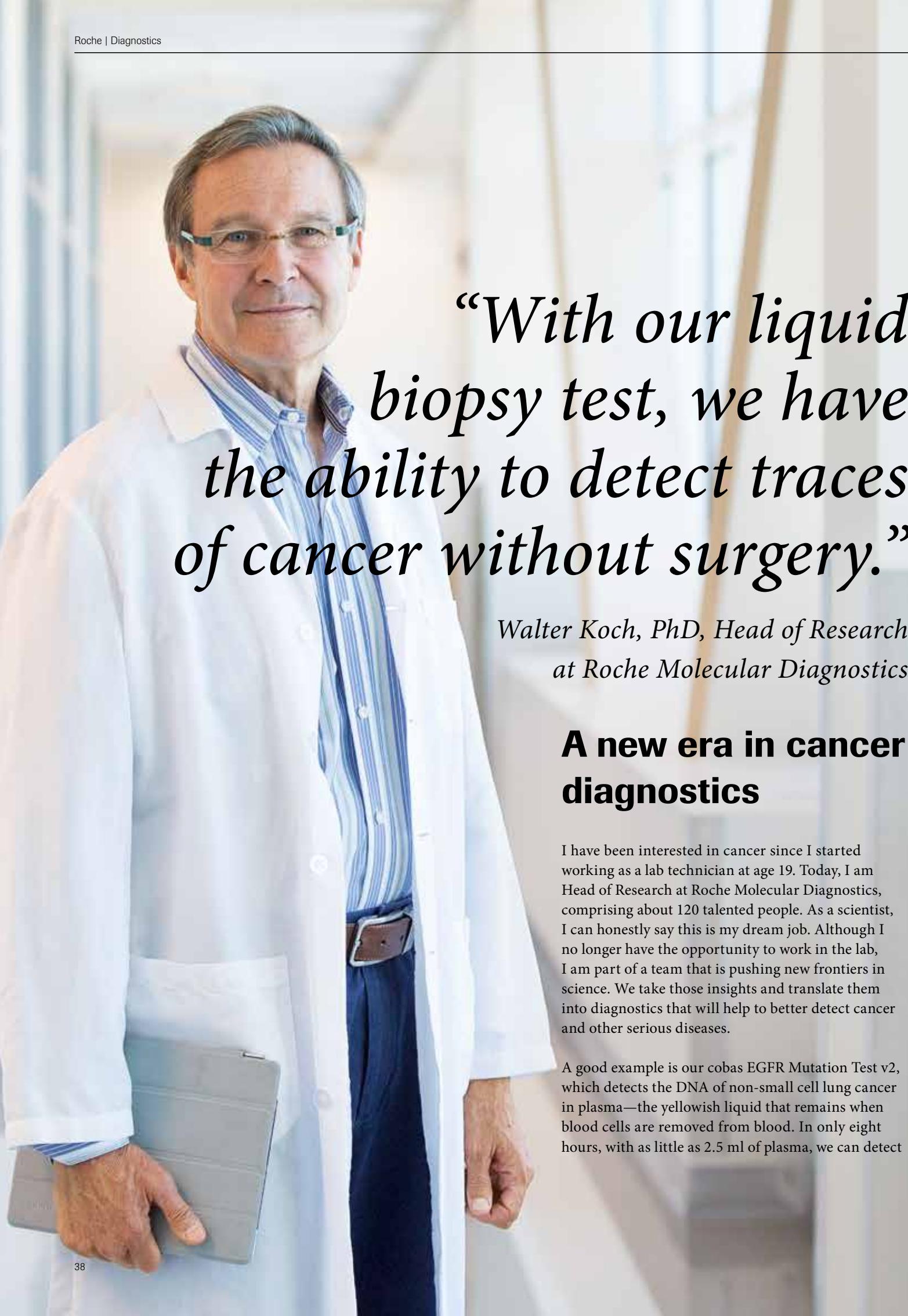
The cobas HSV (Herpes Simplex Virus) 1 and 2 test for the direct detection and differentiation of HSV-1 and HSV-2 DNA in symptomatic patients received FDA 510(k) clearance. With dual-target detection and automation, this test provides laboratories with the capability to report up to 94 results in significantly less time than traditional methods, and provides a simplified workflow for sample handling in the laboratory.

In September 2015, we launched the cobas EGFR Mutation Test v2, our first oncology test that utilises either plasma or tumour tissue as a sample. The test identifies 42 mutations in the epidermal growth factor receptor (EGFR) gene, the most of any *in vitro* diagnostic on the market. This test can also be used as an aid in selecting eligible patients with non-small cell lung cancer (NSCLC) for therapy with an EGFR tyrosine kinase inhibitor.

As more targeted therapies become available, it is critical that we provide oncologists with innovative molecular testing methods that make it easier for patients to get tested, without being subject to surgery risks or tumour tissue availability.<sup>1</sup>

Modern, targeted therapies

Disease-causing mutations	
Unknown	EGFR
MET splice site	ALK Fusions
MET Amplification	HER2
KRAS	BRAF
NRAS	PIK3CA
ROS1 Fusions	AKT1
KIF5B-RET	MAP2K1



*“With our liquid biopsy test, we have the ability to detect traces of cancer without surgery.”*

*Walter Koch, PhD, Head of Research  
at Roche Molecular Diagnostics*

## A new era in cancer diagnostics

I have been interested in cancer since I started working as a lab technician at age 19. Today, I am Head of Research at Roche Molecular Diagnostics, comprising about 120 talented people. As a scientist, I can honestly say this is my dream job. Although I no longer have the opportunity to work in the lab, I am part of a team that is pushing new frontiers in science. We take those insights and translate them into diagnostics that will help to better detect cancer and other serious diseases.

A good example is our cobas EGFR Mutation Test v2, which detects the DNA of non-small cell lung cancer in plasma—the yellowish liquid that remains when blood cells are removed from blood. In only eight hours, with as little as 2.5 ml of plasma, we can detect

with 75–80% accuracy if EGFR activating or resistance mutations are present in non-small cell lung cancer patients.

This liquid biopsy test runs on the cobas 4800 diagnostic platform found in many community hospitals, which means faster results. It also means greater access to targeted therapies for patients, who often are not tested for EGFR mutations, even in developed countries, due to lack of tissue to test. Once they test positive with a liquid biopsy, patients can start targeted therapy, such as Roche's Tarceva. In fact, it was the Tarceva team that first suggested and supported development of a liquid biopsy test. This illustrates the synergies of having Pharmaceuticals and Diagnostics under one roof at Roche.

Liquid biopsy technology offers many benefits to patients. Current practices for detecting cancer are based on microscopic examination of tumour tissue acquired by surgery or invasive biopsy. Some patients are simply too sick to undergo these procedures.

*Personal perspective*

*“As a scientist, I can honestly say this is my dream job.”*

In addition to complementing tissue biopsy in detecting cancer, liquid biopsy has enormous broader diagnostic potential. My colleague, Lin Wu, hypothesised that we could use this technology to monitor patient response to treatment and the development of drug resistance.

When clinical results confirmed our hypothesis, it was a thrill for the whole team. We have the potential to personalise cancer therapy, just as we already do for HIV or hepatitis patients. There are many such occasions when the calibre of the scientific research conducted by my colleagues makes me proud.

Building on our cobas EGFR Mutation Test v2, we are expanding our application of this technology to colorectal, breast and other types of cancer.

We are also exploring liquid biopsies for actionable gene fusions and smaller genetic sequences such as micro-ribonucleic acids—opening exciting new horizons in terms of how we detect, treat and monitor cancer.



*“For me, there is a sense of excitement in learning something new every day and sharing in the success of this team.”*

# Pharmaceuticals

*Roche provides medicines that truly improve patients' lives. With the recently approved combination therapy Cotellic plus Zelboraf in advanced melanoma, Roche brings another option to patients with a life-threatening and hard-to-treat disease.*

25

*million patients  
treated with one of Roche's top 25 selling medicines*

**W**e focus on disease areas with high unmet medical need, where we have the expertise to make a real difference for patients.

As the world leader in oncology, our medicines have helped to revolutionise the treatment of many types of cancer. Take Avastin for example. Designed to target angiogenesis—a process by which new blood vessels are formed that help the tumour grow—Avastin has become a pillar in cancer treatment. Today, Avastin is approved to treat seven different types of cancer.

Our medicines targeting HER2-positive breast cancer, Herceptin, Perjeta and Kadcyla, allow people with advanced disease to live longer and those with early-stage cancer, the chance of sustained remission. MabThera/Rituxan, the first monoclonal antibody, remains the most widely used medicine to treat the most common forms of blood cancer. Avastin, Herceptin and MabThera/Rituxan have played a role in the treatment of more than seven million patients.

In 2015, we gained important insights into the next wave of cancer therapy with recognition of our pipeline innovation, exciting data and key approvals. The FDA granted a second breakthrough therapy designation for our lead cancer immunotherapy candidate atezolizumab, this time in PD-L1 positive

non-small cell lung cancer (NSCLC). Data that we presented at the American Society of Clinical Oncology demonstrated the importance of understanding immune biology in cancer treatment. We also presented new pivotal data on Gazyva/Gazyvaro, which showed that this medicine could further improve outcomes for patients with difficult-to-treat indolent non-Hodgkin lymphoma (iNHL).

We received marketing approvals on new targeted therapies including Cotellic, in combination with Zelboraf for advanced melanoma, and Alecensa for a specific type of lung cancer. We believe the future of cancer treatment lies in combination therapies, targeted treatments and cancer immunotherapy.

#### Beyond oncology

Esbriet, our new medicine to treat idiopathic pulmonary fibrosis, a fatal lung disease, is already making a big difference to patients in its first year on the market. We also presented data which suggested that continuing treatment with Esbriet after early hospitalisation may help slow disease progression.

We also announced important new data for the treatment of multiple sclerosis (MS). Three positive late-stage clinical studies of our investigational MS medicine ocrelizumab confirmed our hypothesis that B cells are central to the pathogenesis of the disease. We will submit these data to regulatory authorities for marketing approval in 2016.

*Jeffrey Schwartz, pictured right, participated in one of our cancer immunotherapy clinical trials.*



## Pharmaceuticals deliver strong growth

### *Driven by oncology and immunology*

Pharmaceuticals sales increased by 5%\* in 2015 to CHF 37.3 billion. Key drivers included Herceptin, Perjeta and Kadcyla (combined +19%) for HER2-positive breast cancer and HER2-positive metastatic gastric cancer (Herceptin only). Herceptin (+10%) sales grew strongly, especially in the US (+15%), with longer duration of treatment in combination with Perjeta for both early and advanced breast cancer. Strong demand was seen in the International\*\* region (+16%), notably in China and Brazil. Perjeta (+61%) also saw strong growth, particularly in the US and Europe, where it was approved for use before surgery in early-stage aggressive breast cancer. There was also good growth

in Japan. Kadcyla (+51%) sales were driven primarily by demand in Europe.

MabThera/Rituxan (+5%), for common forms of blood cancers, including NHL, follicular lymphoma and chronic lymphocytic leukemia, and for rheumatoid arthritis and certain types of vasculitis, performed well. Sales growth was driven primarily by strong demand in the US (+7%), as demand continued to increase in oncology and immunology. Sales increased 4% in the International region, led by increasing demand in Brazil and China, and 11% in Japan.

**Key growth-driving products in 2015 (CHF millions)**



**Avastin**  
Oncology



**Herceptin**  
Oncology



**Perjeta**  
Oncology



**Kadcyla**  
Oncology



**Esbriet**  
Immunology

**6,684**

**6,538**

**1,445**

**769**

**563**

+9%

+10%

+61%

+51%

>+500%

**+5%**

*increase in Pharmaceuticals annual sales,  
driving the Roche Group's overall  
performance in 2015.*

Avastin (+9%), for advanced colorectal, breast, lung, kidney, cervical and ovarian cancer and glioblastoma (a type of brain tumour), posted strong sales growth. Increased sales were seen across all regions due to rising demand in ovarian, colorectal, lung and cervical cancer, following launches in Europe and emerging markets. Strong growth was seen in the US (+8%) and the International region (+15%), particularly in China, where uptake for colorectal cancer and the new lung cancer indication fuelled growth. In Japan (+14%), growth was driven by demand in breast and lung cancer.

Lucentis (-15%, US only), for eye conditions wet age-related macular degeneration (wAMD), macular edema following retinal vein occlusion (RVO) and diabetic macular edema (DME), was impacted by competitive pressure in the wAMD and DME segments. In February 2015, the FDA approved Lucentis for an additional indication, diabetic retinopathy in people with DME.

Actemra/RoActemra (+23%), for rheumatoid arthritis, systemic juvenile idiopathic arthritis and polyarticular juvenile idiopathic arthritis, recorded strong growth. Sales increased across all regions, driven by strong demand for the subcutaneous formulation, particularly in the US (+29%) and Europe (+22%). In June 2015, the FDA granted breakthrough therapy designation for Actemra in systemic sclerosis.

Esbriet (CHF 563 million), for idiopathic pulmonary fibrosis (IPF), a fatal lung disease, had continued strong uptake. Approved by the FDA and Swissmedic in 2014, sales reached CHF 386 million in the US, CHF 152 million in Europe and CHF 25 million in the International region. In September 2015, additional data were presented from a pooled analysis of three phase III studies that suggested a reduction in treatment-emergent risk of death for IPF patients taking Esbriet for up to two years.<sup>1</sup>

\* All growth rates in this report are at constant exchange rates (average 2014). | \*\* Asia-Pacific, EEMEA (Eastern Europe, Middle East, Africa), Latin America, Canada, Others. | 1 Nathan SJ., et al. Effect of Pirfenidone on Treatment-emergent (TE) All-cause Mortality (ACM) in Patients with Idiopathic Pulmonary Fibrosis (IPF): Pooled Data Analysis from ASCEND and CAPACITY, 2015.

## Significant breakthroughs in 2015

### *Advancing patient care*

In 2015, the FDA granted four breakthrough therapy designations on our medicines. This designation helps to accelerate the development and review of medicines intended to treat serious diseases that may demonstrate substantial improvement over existing therapies. In total, we have received this designation 11 times, which is a testament to our commitment to innovation.

As part of the breakthrough therapy designation, we submitted data to the FDA on our lead investigational cancer immunotherapy medicine atezolizumab for the treatment of people with metastatic bladder cancer. We also plan to submit data to the FDA, under breakthrough therapy designation, for atezolizumab for the treatment of people whose NSCLC expresses PD-L1 and whose disease worsened during or after standard treatments. We have either submitted or plan to submit data for both cancer types to global health authorities in 2016. We also presented promising data on atezolizumab in specific types of advanced breast cancer and melanoma at medical conferences in 2015.

At the American Society of Hematology, we presented follow-up results from our pivotal study in people with iNHL who relapsed during or within six months after treatment with a MabThera/Rituxan-based regimen. In a subgroup analysis of people with follicular lymphoma, the most common type of iNHL, treatment with Gazyva/Gazyvaro plus bendamustine, provided significantly greater depth of remission at end of induction compared to bendamustine alone. Pivotal study data were submitted for approval.

The FDA also granted priority review for venetoclax, an investigational medicine being developed in partnership with AbbVie, for patients with a hard-to-treat type of chronic leukemia. This was followed by a second breakthrough therapy designation for venetoclax, in combination with MabThera/Rituxan for relapsed or refractory CLL; and a third in AML.\*

#### Targeted cancer therapy approvals

In 2015, the FDA and the European Commission approved Cotellic in combination with Zelboraf for the treatment of people with BRAF mutation-positive metastatic melanoma. Updated pivotal data showed that the combination helped people to live significantly longer, with a median of two years, compared to Zelboraf alone.

The FDA also approved Alecensa for people with advanced ALK-positive NSCLC whose disease had progressed following treatment with crizotinib. This is the second approval for this medicine, which was created by Chugai, a member of the Roche Group, and approved in Japan in 2014. We have also submitted a marketing authorisation application to the EMA.

Both of these targeted therapies are approved with companion diagnostics, building on our leadership in personalised healthcare. Not all patients respond to a medicine in the same way, and by using a diagnostic test, it is possible to better understand the disease and how well a patient may respond to treatment. Sales of products with a companion test on label now represent 26% of Pharmaceuticals Division sales.



#### Major regulatory milestones

	Product or project	Description
FDA breakthrough therapy designation	Atezolizumab	PD-L1 positive NSCLC
	Emicizumab (ACE910)	Hemophilia A with factor VIII inhibitors
	Actemra/RoActemra	Systemic sclerosis
	Venetoclax	17p deletion relapsed-refractory chronic lymphocytic leukemia
Filing	+ MabThera/Rituxan	Acute myeloid leukemia (AML)*
	Avastin + Tarceva	Relapsed or refractory CLL*
	Avastin	EGFR mutation-positive NSCLC in the EU
	Gazyva/Gazyvaro	Advanced cervical cancer in Japan
Approval	Alecensa	Rituximab-refractory indolent non-Hodgkin lymphoma in the US and the EU
	Avastin	Second-line ALK-positive NSCLC in the US
	Lucentis	Advanced cervical cancer in the EU
	Perjeta	Diabetic retinopathy with diabetic macular edema in the US
	Cotellic + Zelboraf	Early HER2-positive breast cancer, neoadjuvant (pre-surgical) treatment in the EU
		BRAF-positive metastatic melanoma in the US and the EU

*In the last three years, the FDA has granted breakthrough therapy designation on 11 indications of Roche medicines.*

\* The FDA granted breakthrough therapy designation to venetoclax in combination with MabThera/Rituxan for the treatment of people with relapsed or refractory chronic lymphocytic leukemia (CLL) on 20 January 2016 and to venetoclax in acute myeloid leukemia (AML) on 26 January 2016.

## Promising results in multiple sclerosis

### *A potential new treatment option*

A disease of the central nervous system, multiple sclerosis (MS) is a chronic disease in which the immune system abnormally attacks the insulation and support around the nerve cells in the brain, spinal cord and optic nerves, causing inflammation and damage. Most people are diagnosed with this disease in the prime of their lives, between 20 and 40 years of age.<sup>2</sup> MS affects approximately 2.3 million people worldwide.<sup>3</sup>

Patients with relapsing disease, the most common form, have attacks or periods of time when symptoms flare. Those with the primary progressive form, which affect about 10% of MS patients, suffer from a disability which continuously worsens after the onset of the disease, but typically without distinct relapses or periods of remission.

There is no cure for MS, but various treatment approaches are with varying degrees of benefit to patients. In 2015, we presented the results from three phase III clinical studies on our investigational medicine ocrelizumab in MS which provide hope for a new paradigm in treatment.

*MS is a leading cause of non-traumatic disability in young people, usually striking between 20 and 40 years of age.*

#### **Confirming the central role of B cells**

For more than a decade, our scientists have pioneered the concept that selectively targeting a component of the immune system, the CD20-positive B cell, may be an effective therapeutic approach for people with MS.

Whilst this concept was not widely accepted in the medical community, our scientists conducted in-depth research and followed up development programmes with a long-term view and commitment. With the development of ocrelizumab, a humanised monoclonal antibody targeted specifically against CD20-expressing B cells, the hypothesis that B cells are central to the pathogenesis of relapsing MS has been confirmed.

#### **Compelling study results**

Data from two phase III studies, OPERA I and OPERA II, demonstrated clinically meaningful benefit of ocrelizumab in people with relapsing MS. In both pivotal studies, ocrelizumab was compared to an approved standard-of-care  $\beta$ -1a\* interferon, which showed that treatment with ocrelizumab led to significant reductions in the frequency of MS relapses, in the progression of clinical disability (loss of physical abilities) and in the number of lesions in the brain. The safety profile was similar to the standard of care.

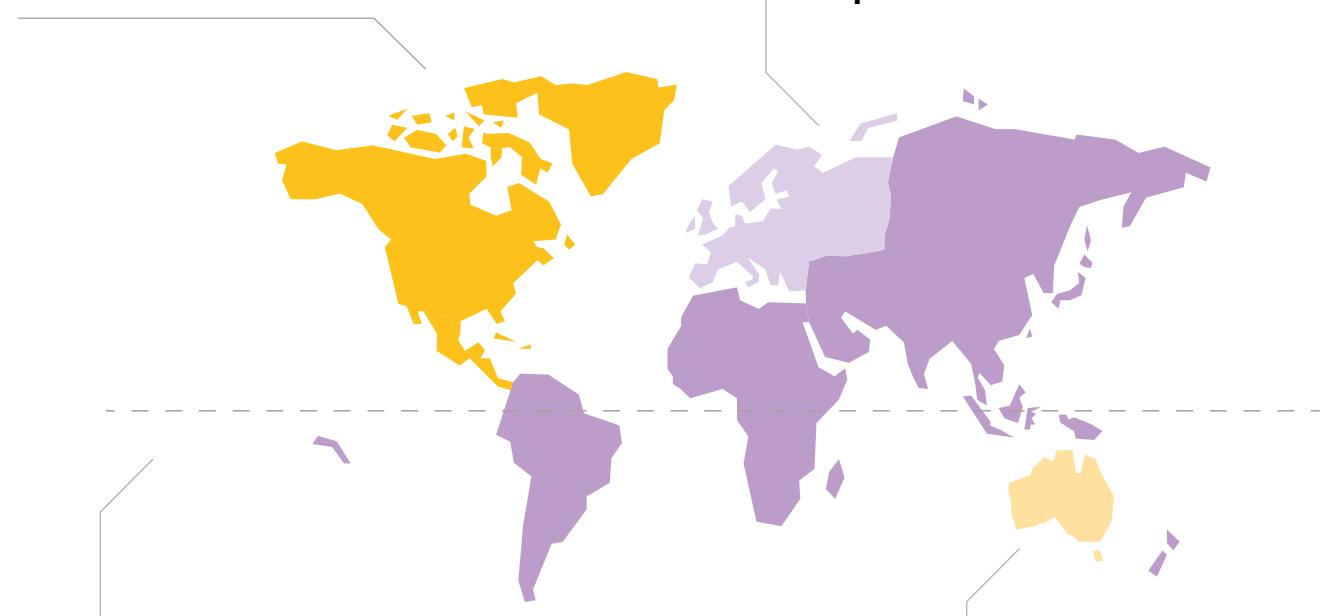
Another phase III study, ORATORIO, assessed ocrelizumab in primary progressive MS, a debilitating form of the disease, and demonstrated a reduction in

Approximately **1 in 710** people in **North America** have MS

MS prevalence is highest in countries furthest from the equator

Approximately **1 in 925** people in **Europe** have MS

Approximately **1 in 1,050** people in **Australia** have MS



Mapping the incidence of MS around the world<sup>2,4</sup>

the progression of clinical disability compared with placebo. The safety profile was similar to placebo.

Ocrelizumab is the first investigational medicine to show positive study results in both primary progressive and relapsing forms of MS, which affects approximately 95% of people with MS at the time of diagnosis. We will submit the ocrelizumab data to global regulatory authorities for both forms of MS in early 2016.

These results build on our deep understanding of immunology and in developing novel antibody-based

medicines. Based on this broad expertise, we are developing a number of innovative medicines in neuroscience.

With one of the strongest pipelines in the industry, we are developing medicines for a range of serious neurological diseases beyond MS, including Alzheimer's disease, autism, spinal muscular atrophy, depression, Parkinson's disease and Down syndrome (see page 65 for more details).

\* Rebif, a registered trademark of Merck KGaA and EMD Serono, Inc. | 2 Multiple Sclerosis International Federation, Atlas of MS, 2013. |

3 National Institute of Neurological Disorders and Stroke, Multiple Sclerosis: Hope Through Research, 2015. | 4 Simpson S., et al. Latitude is significantly associated with the prevalence of multiple sclerosis: a meta-analysis. J Neurol Neurosurg Psychiatry, 2011.



*“We were convinced it was the right thing to do for MS patients.”*

Rita Wong, Head of US Global Biologics,  
Manufacturing Science and Technology Drug Product

## Double-blind by design

I am an intensely curious person, and “why?” is one of my favourite words. So, it was natural for me to become a scientist. That inquisitiveness helped me for almost a decade of working on ocrelizumab, an investigational medicine being studied in patients with multiple sclerosis (MS)—a disease that strikes young adults in the prime of their lives.

I joined Genentech in 1987 right out of college and was hired into the formulation development group. Simply stated, we ensure the active ingredient in our medicines remains stable and usable. I began working on the ocrelizumab formulation in 2006. Four years later, I was appointed Technical Development Leader just prior to the phase III trials in MS.

Roche clinicians wanted to increase the scientific rigour of the phase III trials by comparing ocrelizumab with a standard-of-care medicine approved for the treatment of MS. Both arms were ‘double-blinded,’ meaning that neither patients nor clinicians knew whether they received placebo or the investigational medicine.

My Technical Development Team supplied the materials for these clinical trials. For the first study arm, we scaled up production of ocrelizumab, and produced a placebo formulation identical in appearance for administration, by intravenous infusion.

For the second arm, we purchased a drug that was a standard-of-care medicine approved for the treatment of MS. But how could we develop a placebo that looked like the marketed comparator drug, which came in a syringe, multiple doses, and different presentations? This had never been done before at Roche. And we only had six months before the start of the MS trials.

*“It was teamwork and perseverance that enabled us to succeed.”*

Whilst most of my team moved ahead on ocrelizumab, I formed a tight-knit subteam to develop the comparator placebo. We first broke down the active comparator into its component parts to design the comparator placebo. Then we leveraged our external manufacturing network to produce the placebo syringes, which had to meet the same strict requirements for human injection as our drug.

We faced many obstacles and the merciless ticking of the clock. It was teamwork and perseverance that enabled us to succeed in producing the comparator placebo on time. We were convinced it was the right thing to do for MS patients. We set a high bar test for ocrelizumab that allowed us to produce compelling comparative clinical data in the context of a well-characterised active comparator.

In 2014, I took on my current position, but kept an eye on the clinical trials. In October 2015, positive phase III results on ocrelizumab in MS were released. All the hard work was worth it.



*“The clinical trial design allowed us to show clear benefits to MS patients.”*



# Innovation

*With our broad portfolio of new molecules that address high unmet medical needs, we are at the forefront of transforming science into new therapies.*

# 70

*new molecular entities  
in clinical development*

**A**lmost a decade ago, we transformed our R&D activities by interconnecting our pharmaceuticals and diagnostics research and increasing our investment in external innovation.

This approach has fostered the scientific diversity and creativity needed to develop the powerful tests and medicines we are delivering today. In an industry where tomorrow means years, the value of our early entry into personalised healthcare is seen in our broad and deep pipeline which includes a growing number of targeted drug candidates and companion diagnostics. Today, we are seeing that new treatment approaches, such as combining therapies to attack an illness from different angles, hold great promise to turn cancer and other complex diseases into chronic conditions that people can live with.

At the forefront of the current biological revolution, our researchers are thinking about diseases and the immune system at the most fundamental molecular and cellular level. We are looking to harness the vast increase in molecular information as the next important step in our efforts to develop even better, more personalised treatment solutions.

#### **Positioned to develop next-generation tests and medicines**

Our research and early development is carried out by four organisations: Genentech Research and Early Development (gRED), Roche Pharma Research and Early Development (pRED), Chugai Pharmaceutical Co., Ltd., Japan, a member of the Roche Group, and our Diagnostics Division. We also have win-win partnerships and alliances with more than 200 external companies and institutes.

Triggered by the explosion of scientific insights as well as molecular and genetic data, experts from additional disciplines are collaborating closely today at Roche to master challenges that complex diseases pose to development teams. Compounds successfully developed by gRED, pRED, Chugai and our partners progress into our global late-stage development organisation.

## *Core R&D investments in 2015*

Roche Group

**CHF 9.3 bn**

+5%\*

19.4% of sales

Pharmaceuticals

**CHF 8.1 bn**

+4%\*

21.8% of sales

Diagnostics

**CHF 1.2 bn**

+18%\*

11.1% of sales

\* All growth rates in this report are at constant exchange rates (average 2014).



## Transforming care with new treatments

### *Science for better patient care*

We now know that the same diagnosis in two people may stem from completely different genetic causes and, more meaningfully, that most diseases, in fact, are not a single disease. World-class scientists across the Roche Group are uncovering intricate details about disease biology and the root molecular causes of cancer, inflammation, neurological disorders, rheumatoid arthritis and other complex diseases. At the same time, they are diving deeper into human biology to unlock the mysteries of the immune system—how it fights, surrenders, is overwhelmed, or interacts with the enemy on a cellular battlefield.

These diverse insights are driving ground-breaking discoveries that are transforming how medicine is and will be practiced. For instance, after pioneering the concept, we have confirmed our hypothesis that B cells are central to the pathogenesis of multiple sclerosis. In 2015, we announced exciting results in late-stage clinical studies and are submitting these data to the regulatory authorities for approval.

We are proud of our legacy of paradigm-shifting innovations, including treatments for diseases of the central nervous system in the 1960s, powerful anti-infectives in the 1970s and 1980s, as well as cancer

*We are diving deeper into human biology to understand the immune system and engage it against cancer.*

therapies in the last two decades. Most recently, we have been investing heavily in the emerging field of cancer immunotherapy, where we have made inroads in understanding the multifaceted biology of the immune response to an individual's cancer. In view of the biological diversity and adaptability of cancers, we believe combination therapy, designed according to the specificity of the disease presentation, will play an important role in battling cancer.

The game-changing arena of molecular information-driven R&D requires us to update every area of product development: from basic research, target identification and molecule design to clinical research, identification of relevant biomarkers and development of companion tests. In addition, we are recasting the long-standing model for clinical studies to bring effective treatments to patients faster. We are also learning how to standardise, validate, cull and best use the astounding volume of scientific and real-world data being generated every day, which is increasingly critical in decisions made by Roche, regulators, payers and ultimately, providers and patients.

Whilst our main focus is on oncology, inflammation/immunology, neuroscience, infectious diseases and ophthalmology, we are open to other areas where we can make a real difference for patients. We have helped to make progress in the treatment of many diseases that only a few years ago had few or no viable treatment options. However, tremendous unmet medical need remains.

#### A new era in tackling cancer

For more than 50 years, we have been developing medicines that have improved and even redefined oncology treatment. We believe advances in cancer therapy will progress dramatically through the emerging field of cancer immunotherapy. Based on understanding the biology of cancer and the immune system at their molecular levels, cancer immunotherapy aims to provide each patient with tailored treatment that powers her or his own immune system to fight their particular cancer.

Today, we are investing more than ever to bring personalised cancer immunotherapy to physicians, so they have a growing toolkit of targeted medicines against cancers along with diagnostic tests that accurately predict who is most likely to respond.

#### Harnessing the immune system to fight cancer

Cancer cells use cellular camouflage to avoid being attacked by our immune system. For a long time, it was unclear why cancer cells were going undetected, but scientists, including experts across the Roche Group, are unravelling the mystery of how cancer evades the immune system as it starts, grows and spreads. We are using that knowledge to develop medicines that harness the body's immune system to fight cancer.

Data from a number of Roche clinical studies presented in the last 18 months reveal that cancer immunotherapies show extraordinary promise where other treatments have previously failed. When treated with the most advanced cancer immunotherapies, some patients with terminal cancers have lived for extensively longer periods of time compared to benefit from classical treatment.

#### Targeting the cancer-immunity cycle

Our immune system protects our body from cancer through what we now understand is a multi-step

cancer-immunity cycle. We have learned that tumours can disrupt the cycle by disabling, hiding from and co-opting the immune response at several points along the way. The goal of cancer immunotherapy research is to identify, understand and counteract a tumour's ability to suppress the immune response.

Our scientists are focused on inhibiting the diverse mechanisms a tumour can use to sabotage the immune system, and also on stimulating the immune response against cancer. Our R&D programme includes more than 20 cancer immunotherapy candidates that target one or more steps in the cancer-immunity cycle. For example, overexpression of the protein programmed death ligand 1 (PD-L1) by cancer and immune cells can block the last stages in the cancer-immunity cycle. Inhibiting PD-L1 with atezolizumab thwarts this disruption and allows the immune cells to attack the tumour.

#### New drug candidates offer promise

Atezolizumab is an investigational antibody designed to fight tumours by blocking the PD-L1 protein. PD-L1 is produced on the surface of both tumour and immune cells and is believed to act as a stop sign that blocks immune cells from recognising, attacking and destroying cancer cells. More than a dozen different tumour types have hijacked this PD-L1 to PD-1 interaction. Atezolizumab removes this cellular camouflage in such tumours, allowing the immune cells to attack cancer.

In bladder cancer, the phase II IMvigor 210 study showed that atezolizumab shrank tumours in 27% of people with metastatic urothelial carcinoma (mUC) whose disease had medium and high levels of PD-L1 expression and worsened after initial treatment. When the results were assessed, 92% of people who responded to atezolizumab continued to respond.

Two phase II studies evaluated atezolizumab in people with advanced non-small cell lung cancer (NSCLC). The randomised phase II study POPLAR showed that people with recurrent NSCLC whose tumours expressed medium and high levels of PD-L1 survived a statistically significant 7.7 months longer than people who received docetaxel chemotherapy.

A separate, pivotal single-arm phase II study, BIRCH, showed that this drug candidate shrank tumours in up to 27% of people whose disease had progressed on prior medicines and also expressed the highest levels of PD-L1.

In all of the above atezolizumab studies, median survival had not yet been reached and adverse events were consistent with those observed in previous studies.

In the US, the FDA granted breakthrough therapy designation for atezolizumab for the treatment of mUC and NSCLC in 2014 and 2015, respectively.

**Companion diagnostics to guide therapy decisions**  
In keeping with our personalised healthcare strategy, all atezolizumab studies include the evaluation of an investigational immunohistochemistry test developed in-house that uses a specific antibody to measure PD-L1 expression on both tumour cells and infiltrating immune cells.

*There are 11 ongoing or planned phase III studies with atezolizumab across several kinds of lung, kidney, breast and bladder cancer.*

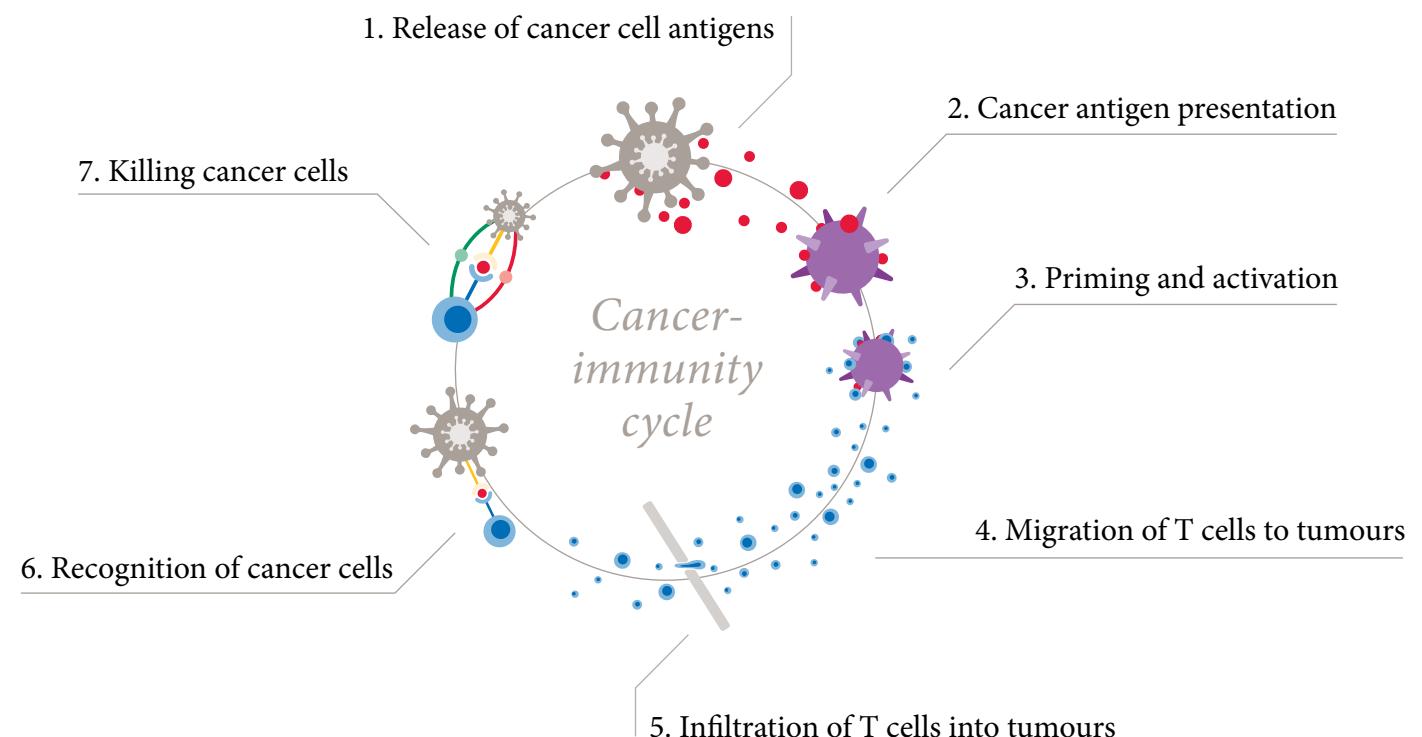
We believe that having diagnostic information is important so that physicians and patients have the opportunity to incorporate all available information into their treatment decisions. Differentiating which patients are likely to benefit from monotherapy from those who perhaps should be considered for alternative treatment strategies—for example, a cancer immunotherapy combination clinical trial—is an important consideration when making a treatment decision.

#### Other ways to target the cancer-immunity cycle

It is thought that more than 70% of all tumours are able to evade recognition by the immune system.<sup>1</sup> To counter a tumour's ability to hide from the immune system, we are developing specific diagnostics to understand the type of tumour and how best to deliver the most appropriate treatment strategy along each of the various steps of the cancer-immunity cycle. Our scientists are also looking for differences in the expression patterns of immuno-regulatory molecules in people who respond to treatment versus those who do not. The aim is to identify which patients may benefit from a specific combination therapy over a monotherapy and to identify new targets for drug discovery.

Our research indicates that patients whose tumours are inflamed and show an active invasion of immune cells have a higher response rate to atezolizumab than patients with non-inflamed tumours that lack such invasion.

We are working to find new ways to further deepen treatment responses to atezolizumab in inflamed tumours, and to turn non-inflamed tumours into inflamed tumours through combination therapies with atezolizumab that potentially trigger a response.



#### The cancer-immunity cycle

Illustration of how the immune system recognises and kills a cancer cell. In any one patient, the cycle can fail at any one of a number of points.  
Adapted from Chen & Mellman.<sup>1</sup>

The ultimate goal is to bring the benefits and promise of cancer immunotherapy to those people with the greatest need for new treatment options. Across the Roche Group, our scientists have identified a broad pipeline of compounds that target different cancer-immunity checkpoints along the cycle.

Among the strategies employed by tumours to block T cell activity is IDO-1 protein induction. IDO-1 expression is unregulated in tumour cells and/or antigen-presenting cells (APCs). Through the *in situ* depletion of extracellular tryptophan and the

production of immunosuppressive metabolites, IDO-1 blocks the proliferation of T effector cells whilst it promotes the generation of T regulatory cells, which counteract the fighting activity of T effector cells.

Furthermore, IDO-1 expressing APCs become pro-tolerogenic and unable to prime an effective immune response through the presentation of cancer proteins (antigens) in the lymph nodes and in the tumour microenvironment. As a result, IDO-1 expression helps the tumour evade the immune system and blocks an effective anti-tumour immune response.

<sup>1</sup> Chen DS. and Mellman I., Oncology Meets Immunology: The Cancer-Immunity Cycle, *Immunity*, 2013.

### Activating additional antagonists

We are performing both in-house and partnered research to develop compounds that target both IDO-1 and TDO (tryptophan-2,3-dioxygenase), another protein like IDO-1 involved in tryptophan degradation. A first-in-class dual IDO/TDO inhibitor is being developed with Curadev Pharma Private Limited. We also have a research agreement with NewLink Genetics Corporation for the discovery of next-generation IDO/TDO compounds. The small molecule IDO-1-inhibitor RG6078/GDC-0919, an indolamine-2,3-dioxygenase (IDO-1) checkpoint inhibitor is being developed in collaboration with NewLink Genetics. It is currently in clinical development. Another IDO inhibitor, INCB024360, is being developed in collaboration with Incyte. Separately, we have begun investigating a newly discovered immune receptor target known as TIGIT (T cell immuno-receptor with Ig and ITIM domains), which may play a role in fine-tuning the PD-1 response.

Along with inhibiting a tumour's ability to sabotage the immune system, we are exploring pathways to activate immune response. APCs, which are highly effective stimulators of T cells, are activated by antibodies engineered to bind to CD40 surface protein. Therefore, boosting APCs represents an additional tactic to augment the number of active T effector cells. The CD40 agonist RG7876 activates APCs that have engulfed tumour antigens, therefore stimulating tumour reactive T cells. RG7876 is being developed in combination with other immunotherapeutic antibodies, including atezolizumab.

Using a cytokine fusion protein is another strategy to mobilise T cells into the tumour. The antibody RG7813 binds to carcinoembryonic antigen (CEA), a protein found on the surface of many cancers. It carries a molecule called interleukin 2 variant (IL-2v),

which signals immune cells to divide and proceed to attack. IL-2v is designed to favour immune-stimulatory over immune-suppressive cells, creating a tumour-hostile milie. Due to specific targeting, the antibody is expected to act more strongly in a tumour than in host organs, leading to reduced cytokine-mediated toxicities seen with current IL-2 therapies.

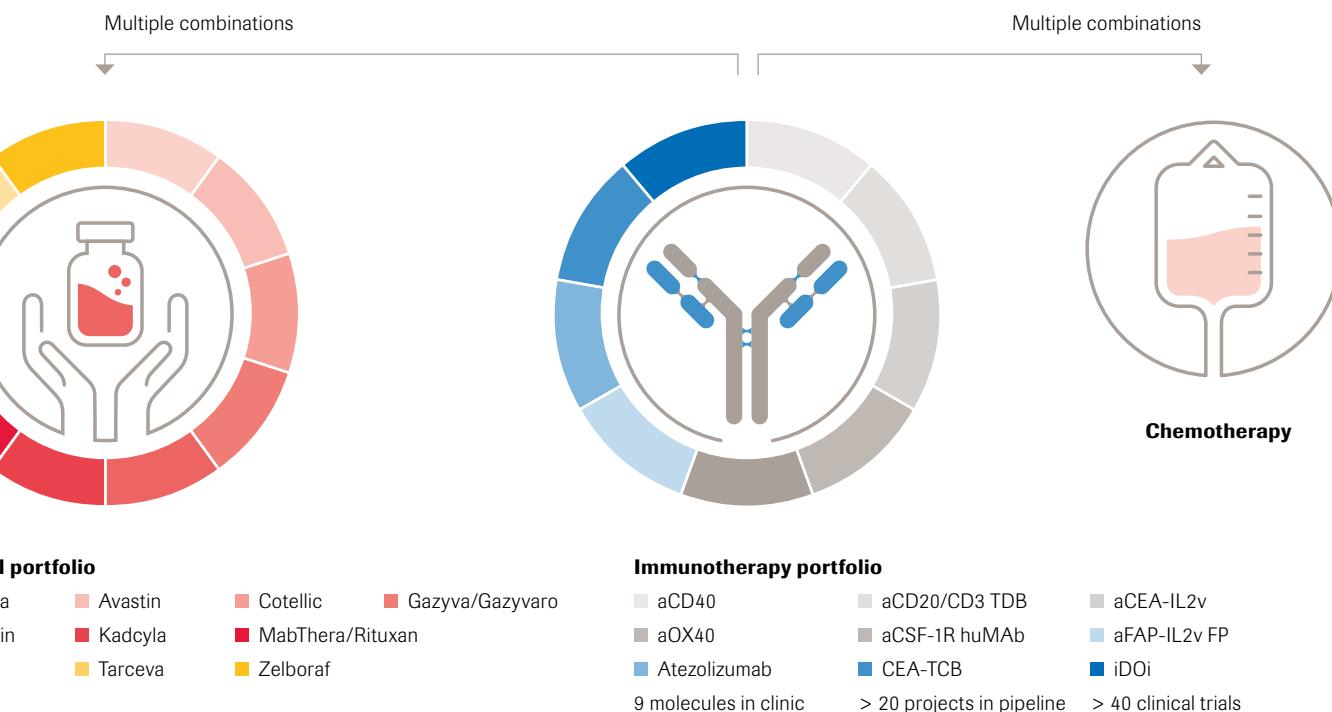
### Supporting the immune system

In order to help the immune system identify and engage tumour cells, we have designed a unique form of an engineered T cell bispecific antibody which can redirect T cells against tumour cells in a very specific manner. The T cell bispecific antibody binds simultaneously to a target on tumour cells (including CEA or CD20) and to a target on T cells, which provokes T cell activation, T cell proliferation, T cell infiltration and the destruction of tumours. Our RG7802 bispecific antibody targets CEA, found on the surface of most colorectal and gastric cancers and some pancreas, lung and breast cancers. RG7876, RG7813 and RG7802 are all in phase I clinical development.

We are also testing the antibody RG7888 (MOXR0916), designed to stimulate immune response by activating the OX40 signalling pathway. In the tumour tissue, it eliminates immunosuppressive T regulatory cells and in the lymph nodes, as soon as APCs transport tumour antigens, it stimulates the growth of T cells to battle tumour cells. RG7888 is being tested in phase I clinical trials as a single agent and in combination with atezolizumab. This drug candidate holds promise for treating several types of cancer.

**Cancer vaccines and immunotherapy combinations**  
Our researchers are exploring innovative approaches that enable an immune response when no tumour-specific T effector cells can be found in either the tumour tissue or the immune environment. For

## Atezolizumab: The foundation of our cancer immunotherapy portfolio



example, we are working on several types of cancer vaccines that might trigger a tumour-specific T cell response in patients where such responses have not occurred spontaneously.

As we dive deeper into the complex biology of tumours and the immune system, we increasingly believe a combination of treatment approaches may hold the greatest promise for cancer patients. We currently have numerous studies underway internally and with partners to test atezolizumab in combination with other immunomodulators or with some of our leading tumour-targeted therapies, such as Avastin and Zelboraf.

One phase I clinical trial initiated in 2015 combines atezolizumab and emactuzumab (RG7155), an antibody against the colony-stimulating factor-1 receptor, which is involved in the production of tumour-associated macrophages (TAMs). Emactuzumab blocks the activity and survival of TAMs, preventing them from

suppressing T cells and from promoting tumour growth and the formation of cancer-induced blood vessels. Combination studies in patients have also begun with our anti-OX40 antibody and with the IDO-1 inhibitor.

We now have more than 20 cancer immunotherapies in research and development, with nine compounds currently being tested in clinical studies and multiple combinations under investigation. Our comprehensive cancer immunotherapy programme covers a total of more than 40 trials underway in lung, kidney and breast cancer. Ultimately, we expect cancer immunotherapy to spawn a new era in oncology with the development of therapies that transform deadly cancers into chronic diseases which patients can live with for a long time.

*We have nine new molecular entities in clinical studies in cancer immunotherapy.*



*“A special opportunity to have an impact—as a scientist and a physician.”*

Dan Chen, MD, PhD, Cancer Immunotherapy Franchise Head,  
Global Product Development Oncology

## The immune system fighting cancer

As a scientist, I have always been fascinated by the potential of harnessing the body's own immune system to fight cancer. I am particularly encouraged by the progress we are making in this area at Roche in realising that potential.

I am trained as a medical oncologist, and I have seen many patients fight bravely against cancer. During those desperate times, I have been their doctor, their counsellor and often their friend. And I have watched most of them lose the battle.

I myself have had a personal glimpse into how difficult a journey this fight can be. In 2008, I was informed that the MRI I had on my back showed a two-centimetre tumour in my spine. The tumour crushed the nerves in my spine, putting me in pain so excruciating that it frightened my children.

Work helped me to focus my mind and my spirit during that year and a half. I never missed a day of work during my treatment, which was very tough at times. Due to the location of the tumour, we weren't able to get a biopsy, so I also had to come to grips with the uncertainty of whether I was going to live or die.

Today with our investigational cancer immunotherapies, I have seen cases unlike others in my years of medical practice. Patients who were clearly nearing the end have been recalled, regaining much of their former life, and continue to do well.

One such patient is Jeff Schwartz. When he was diagnosed with stage IV sarcomatoid renal cell carcinoma in February 2011, metastases had already spread throughout his body. He was told by a kidney specialist that he had only six months to live.

In December 2011, Jeff started on a clinical trial of one of our cancer immunotherapies. By the time he started treatment, he could barely get out of bed. In the study, Jeff responded well to the treatment.

*Personal perspective*

*“My own experiences with cancer helps me to empathise with patients.”*

He regained the weight he had lost. Most importantly to him, he was able to read and play with his two small children again.

Over a year later after he started the clinical study, I had the pleasure of meeting Jeff, after he had expressed interest in meeting us through his doctor. This was a special experience for me, as I only knew of him as a data point on our clinical study. Jeff's story is extremely gratifying to me on so many levels. He continues to do well today. Results like these give oncologists an incredible sense of fulfilment and purpose.

Not all patients respond as well as Jeff. His therapy addressed a particular pathway in the immune system known as PD-L1. There are many other opportunities for cancer cells to camouflage themselves and escape the immune response. However, by leading the understanding of how the immune system works in cancer, we are rapidly developing even newer ways to help the immune system recognise and fight cancer.

New insights are occurring in cancer immunotherapy every day now. It is an amazing time to be in this field, and my job is a special opportunity to have an impact both as a scientist and a physician.



*“I had the pleasure to meet Jeff, after he expressed interest in meeting us through his doctor, oncologist Omid Hamid.”*

## Positive pipeline news flow

### *Strong data from clinical studies*

As we gain greater understanding about tumour biology and immune function, cancer is divided into ever more specific subtypes, defined not only by location in the body, but increasingly more often by molecular structure, protein markers, genetic mutations or signalling pathways. Scientists are verifying root genetic causes and finding new ways to conquer them.

#### **Leukemia and lymphoma**

Positive data from the phase II M13-982 study of venetoclax, an investigational small molecule medicine being developed in partnership with AbbVie showed a clinically meaningful reduction in the number of cancer cells (overall response rate, ORR) in 79.4% of people with previously treated (relapsed or refractory) chronic lymphocytic leukemia (CLL) with 17p deletion. It is a first-in-class molecule that binds to the BCL-protein and helps restore a natural process that causes cancer cells to self-destruct. Study patients had previously treated CLL with a genetic mutation known as 17p deletion. This mutation is seen in approximately 30% to 50% of CLL patients, who typically have poor results with existing therapies.

Venetoclax is being studied in phase II and III trials for CLL and in phase I and II studies for several other blood cancers. AbbVie has submitted an NDA to the FDA under breakthrough therapy designation and to the EMA. Submissions to other regulatory authorities around the world are planned in 2016 (see page 46).

Idasanutlin is currently being studied in a phase III trial in relapsed/refractory acute myeloid leukemia (R/R AML). Idasanutlin is a first-in-class MDM2 antagonist/p53 activation investigational medicine that inhibits tumour cell growth and induces tumour cell death. In a phase I/Ib study, idasanutlin showed consistent durable complete remissions in R/R AML, a very difficult to treat, life-threatening disease with high morbidity and unmet medical need. Idasanutlin showed a 17% ORR as single agent and 33% ORR in combination with chemotherapy Ara-C in the phase I/Ib study.

Patients with R/R AML are in need of new therapies that will increase survival since there has been no significant progress in this regard over the last four decades. In addition to the phase III trial, idasanutlin is also being studied in phase Ib/II trials in combination with venetoclax in AML and in combination with Gazyva/Gazyvaro in non-Hodgkin lymphoma. In addition, we are investigating RG7828, a bispecific antibody that targets CD3-CD20. RG7828 is designed to bind to a target on a patient's leukemia or lymphoma cells (CD20), whilst at the same time binding to a target on their T cells (CD3), redirecting the T cells to attack the cancer cells. The antibody has a different mechanism of action than rituximab, which is currently used to treat blood cancers, and preclinical testing suggests it could circumvent rituximab resistance.

#### **Prostate cancer**

Ipatasertib (RG7440), an Akt inhibitor developed in partnership with Array BioPharma, reached efficacy and safety endpoints when combined with abiraterone in a phase II trial in patients with castration-resistant prostate cancer previously treated with docetaxel chemotherapy. Activation of the Pi3K/Akt pathway is associated with poor prognosis and may lead to resistance to standard-of-care therapies. Ipatasertib blocks signalling through Akt, and can be combined with anti-hormonal therapeutics like abiraterone to potentially extend the duration of benefit. Ipatasertib is also being studied in combination with chemotherapy in patients with triple negative breast cancer.

#### **Hemophilia**

Hemophilia A, a rare genetic disorder, occurs when an essential blood-clotting protein called factor VIII is either not present in sufficient amounts or is defective. In 2015, the FDA granted breakthrough therapy designation to emicizumab (ACE910, RG6013), a bispecific antibody, for treatment with factor VIII inhibitors of people with severe hemophilia A who are 12 years or older. The development of inhibitors, antibodies developed by the body's immune system that attack and destroy the replaced factor VIII, is a serious complication of hemophilia A treatment regardless of disease severity, making it difficult, if not impossible, to achieve a level of factor VIII sufficient to control bleeding with traditional replacement therapies.<sup>2</sup> Based on encouraging data from a phase I/II study that showed promising efficacy with once-weekly subcutaneous administration of emicizumab, the first of our pivotal studies started enrolment in late 2015. This trial will evaluate emicizumab in people with hemophilia A and inhibitors to factor VIII who are 12 years or older. We are preparing to initiate additional trials in 2016, including a phase III trial of emicizumab in people with hemophilia A without

factor VIII inhibitors, as well as a trial in pediatric patients (less than 12 years old) with hemophilia A who have inhibitors to factor VIII.

#### **Neuroscience**

We have a number of investigational medicines in clinical development for neurological disorders, including multiple sclerosis (MS), Alzheimer's disease (AD), Parkinson's disease (PD), spinal muscular atrophy (SMA), Down syndrome, autism spectrum disorders and pain.

#### **Multiple sclerosis**

In 2015, positive results from two phase III studies, OPERA I and OPERA II, on ocrelizumab in relapsing MS, and one phase III study, ORATORIO, in primary progressive MS were presented. In relapsing MS, ocrelizumab significantly reduced the annualised relapse rate, the primary endpoint of both studies, by nearly 50% compared with interferon β-1a over the two-year period. In primary progressive MS, the ORATORIO study met its primary endpoint, showing treatment with ocrelizumab significantly reduced the risk of progression of clinical disability sustained for at least 12 weeks by 24% compared with placebo.

#### **Alzheimer's disease**

Our research focuses on several pathways believed to play important roles in this disease, including β-amyloid and tau. Clinical research findings presented in 2015 confirm the hypothesis that β-amyloid plays an important role in development and progression of AD. In addition, early research indicates that tau may be implicated in this disease. With multiple pathways and potential pathologies that contribute to development and progression of this disease, our research portfolio is positioned well to contribute to significant advances in this disease area as we continue to generate data in early and late development stages.

<sup>2</sup> Astermark, J. Overview of Inhibitors, Seminars in Hematology, 2006.

We have two investigational compounds in late-stage development. Crenezumab, a monoclonal antibody, is designed to target all forms of  $\beta$ -amyloid and has moved into phase III clinical development in prodromal-to-mild AD. The monoclonal antibody gantenerumab is designed to decrease levels of aggregated  $\beta$ -amyloid. Further recruitment has been stopped for a phase III study of gantenerumab in people with mild dementia due to AD (Marguerite RoAD). Analysis of data from the phase II/III SCarlet RoAD study provided evidence that people with early AD might benefit from a higher dose of gantenerumab. All participants in the SCarlet RoAD and Marguerite RoAD studies will now be offered treatment with a higher dose of gantenerumab to assess tolerability and safety. Upon evaluation of the higher dose data and after discussions with health authorities, we will decide on next steps for further clinical development of gantenerumab.

#### Parkinson's disease

RG7935 is a monoclonal antibody targeting  $\alpha$ -synuclein, a protein that may misfold and be involved in the pathogenesis of PD. In a development collaboration with Prothena, RG7935 is currently being studied in a phase I trial involving people with PD. An in-house developed smartphone app continuously measures symptom fluctuation in people with PD. It is potentially the first time such an approach has been used to measure disease and symptom severity in a medicine development programme in PD. The remote patient monitoring system works through a combination of patient input and passive tracking. The app is being used in an ongoing trial for continuous measurement of daily symptom fluctuation. Ultimately, it is hoped that the app can be used in future clinical development to enable more objective measures on patient response to treatment, as a complement to physician-led assessments.

#### Amyotrophic lateral sclerosis

We are also conducting research in amyotrophic lateral sclerosis, also known as Lou Gehrig's disease, a disorder that involves the death of neurons, especially motor neurons. People with this progressive neurodegenerative disease suffer from stiff muscles, muscle twitching, and gradually worsening weakness due to muscle wasting that results in difficulty speaking, swallowing and eventually breathing.

#### Neurodevelopmental disorders

We continue our commitment to finding new treatment options for people with neurodevelopmental disorders, including autism spectrum disorder and Down syndrome. A phase II trial is underway to test the safety and tolerability of our V1a receptor antagonist RG7314 in people with autism spectrum disorder. This compound may improve the core social communication and interaction deficits of people with this disorder.

In Down syndrome, we have an ongoing phase II study investigating RG1662 in adolescents and adults (12 to 30 years of age) and have started another phase II trial studying this investigational compound in children six to 11 years of age. Preclinical data have shown that by selectively modulating GABA-A receptors in the brain, it may be possible to stimulate learning and memory pathways, leading to improvements in cognition as well as functioning and adaptive behaviour in people with Down syndrome.

#### Spinal muscular atrophy

A rare and debilitating genetic neuromuscular disorder, SMA is most commonly diagnosed in children and is the leading hereditary cause of infant mortality. SMA is caused by mutation or deletion of the SMN1 gene and is characterised by insufficient levels of SMN protein, which leads to progressive loss of motor neurons, muscle weakness and atrophy.

SMA affects the motor neurons of the muscles used for activities such as crawling, walking, head and neck control and swallowing. It is one of the most common rare diseases, with one in 10,000 born with SMA.

Olesoxime (RG6083) is an investigational medicine being evaluated for its potential ability to preserve healthy spinal motor nerve cells. Results from a two-year phase II/III clinical trial involving people with type 2 and non-ambulatory type 3 SMA indicate that olesoxime stabilised neuromuscular function, as well as reduced medical complications associated with the disease, over two years compared with placebo. Olesoxime is a cholesterol-like compound that binds to proteins found in mitochondria in cells (the source of cellular energy production or the 'powerhouse of the cell'). Olesoxime is designed to reduce the release of cell death factors from mitochondria and promotes the survival of spinal motor nerve cells. Olesoxime was granted orphan medicinal product designation for the treatment of SMA by the European Medicines Agency and orphan drug designation by the FDA.

In collaboration with PTC Therapeutics and the SMA Foundation, we are developing SMN2-splicing modifiers for the treatment of SMA. The phase Ib Moonfish trial investigating the safety of RG7800 in people with SMA was placed on clinical hold in April 2015. The decision to suspend dosing in Moonfish was taken by Roche as a precautionary measure, after observing an unexpected finding in an animal study evaluating the long-term safety of RG7800. We continue to thoroughly assess the safety finding in ongoing animal studies and have advanced a second backup

SMN2-splicing modifier (RG7916) into clinical testing. A clinical trial investigating the safety, tolerability, pharmacokinetics and pharmacodynamics of RG7916 in healthy individuals was started in January 2016.

#### Huntington's disease

A rare genetic neurological disease, HD causes people to experience deterioration of both mental abilities and motor control. Presently, there are no disease-modifying treatments for HD. We are collaborating with Ionis Pharmaceuticals to develop RNA-targeting medicines for the treatment of HD. In mid-2015, the first patient entered a phase I/IIa clinical study to evaluate Ionis-HTTRx, the first therapy to enter clinical development designed to reduce the production of all forms of the huntingtin (HTT) protein, including mutant huntingtin, which is the protein responsible for HD.

#### Immunology and inflammation

There are more than 80 different types of autoimmune diseases; many of them chronic, debilitating and even life-threatening. Most of the currently available therapies are unspecific, generally targeting immunosuppression but not addressing the disease cause. We have expanded our immunology and inflammation research and early development efforts, in recognition of the high unmet need and recent scientific advances that lead to a better understanding of molecular mechanisms underlying these diseases. Our scientists are focused on pathways underlying adaptive immunity, innate immunity as well as tissue inflammation and fibrosis.



One of our internal programmes is the cathepsin S (CAT-S) inhibitor (RG7625), which is believed to reduce the amount of specific molecules available for antigen presentation, therefore limiting immune response. RG7625 could potentially be applied for treatment of multiple autoimmune diseases, as CAT-S is involved in central pathways for adaptive immunity. Another programme, RG7845 (GDC0853) is a novel Bruton's tyrosine kinase (Btk) inhibitor that helps block B cell proliferation and the resulting excessive immune response seen in autoimmune disorders. GDC0853 binds to Btk in a novel way that is believed to increase its effectiveness, and offers promise for patients with other difficult-to-treat autoimmune diseases.

In parallel to our own discovery activities, we strive for alliances in this area with key academic and biotech partners. In October we acquired RG6125 (SDP051) from Adheron Therapeutics. RG6125 is a monoclonal antibody targeting cadherin-11, which is believed to disrupt tissue cell interactions that drive inflammation in a non-immunosuppressive manner. In December, we partnered with Proximagen to develop a novel, oral small molecule inhibitor of Vascular Adhesion Protein 1 (VAP-1), a cell-adhesion molecule that may be effective in the treatment of inflammatory diseases.

#### Ophthalmology

Our research focuses on neovascular age-related macular degeneration (AMD), diabetic macular edema, diabetic retinopathy, glaucoma and geographic atrophy (GA) and glaucoma. GA is an advanced form of AMD that affects over five million people globally in the developed world.<sup>3</sup> There are currently no therapies approved for GA. In 2015, the FDA granted fast track designation to lampalizumab for the treatment of GA secondary to AMD. Lampalizumab (anti-Factor D Fab) is a selective inhibitor of complement-mediated inflammation and potentially the first

disease-modifying therapy for GA. Lampalizumab phase III studies are currently ongoing.

Additionally, we are pioneering the development of a highly innovative bispecific monoclonal antibody, RG7716, that targets VEGF-A and Angiopoietin-2 (Ang-2), two angiogenic growth factors (meaning they spur blood vessel growth). RG7716 is in a phase II clinical study for neovascular AMD. RG7716 is a bispecific antibody developed with the Roche-invented CrossMab technology to tightly bind VEGF-A on one arm and Ang-2 on the other arm. A randomised, active comparator-controlled phase II study is currently investigating the safety and efficacy of RG7716 in patients with choroidal neovascularisation secondary to AMD.

#### Respiratory diseases

Lebrikizumab, which targets a protein found in people with moderate to severe uncontrolled asthma, is in phase III development with data expected in 2016. In 2015, Thorax published phase IIb study results that showed lebrikizumab-treated patients with a high level of periostin had a 60% reduction in asthma attacks, compared with only 5% in patients with a low level of periostin.<sup>4</sup> A companion test to identify high periostin levels is being developed in-house to support physicians in personalising asthma therapy.

Lebrikizumab is also in phase II trials for the treatment of idiopathic pulmonary fibrosis (IPF), moderate-to-severe atopic dermatitis, and moderate-to-very severe chronic obstructive pulmonary disease (COPD). In 2015, the phase II IPF study was extended to compare a combination of Esbriet plus lebrikizumab and Esbriet alone.

In addition, we are evaluating Erivedge, our treatment currently approved for advanced basal cell carcinoma (aBCC), and GDC-3280, an additional molecule that we acquired with Esbriet from the InterMune acquisition.

Severe asthma not only impacts the quality of life of the patient and the caregiver, it also increases the medical burden for society.

#### Infectious diseases

The rise of bacterial resistance has become a threat to global health. In line with our strong legacy in antibiotics, we are leveraging significant know-how to address this 21<sup>st</sup> century problem. Early studies are underway on a novel antibody that targets a potential cause of re-infection in *Staphylococcus aureus*. Leveraging our breakthrough cancer technology, we are using a leading-edge Trojan-horse type of platform that sneaks the drug into bacteria. This platform may have potential for other resistant infections. Also, in partnership with Meiji Seika Pharma and Fedora, we are developing the next-generation β-lactamase inhibitor RG6080.

#### Antivirals

For the past decade, Pegasys has been an important medicine for treating patients with the hepatitis B virus (HBV). Roche continues to explore ways to treat the potentially life-threatening liver infection, which affects an estimated 240 million people.<sup>5</sup> Our rich HBV programme has advanced three compounds into clinical development, each believed to interfere with HBV in a different way to promote antiviral responses.

## Severe asthma: current medications do not break the severe asthma cycle.

We have one compound in phase II (RG7795, TLR7 agonist) and two compounds in phase I (RG7944 and RG7834). The development of RG7944 is led by our partner, Inovio. Several molecules in our HBV portfolio have been developed in our R&D centre in Shanghai, China, in recognition of the heavy burden that HBV puts on China.

We are also advancing candidates for treating patients with the hepatitis C virus (HCV), which has infected more than 185 million people.<sup>6</sup> Danoprevir, a second-generation HCV protease inhibitor, is being developed for patients of Asian origin through the R&D centre in China, in collaboration with Ascletis. A phase II study of danoprevir in combination with pegylated interferon plus ribavirin showed a sustained viral response in patients with certain genotypes or subtypes of HCV.

<sup>3</sup> Wong WL., et al. Global prevalence of age-related macular degeneration and disease burden projection for 2020 and 2040: a systematic review and meta-analysis. Lancet Glob Health. 2014. | <sup>4</sup> Hanania NA., et al. Lebrikizumab in moderate-to-severe asthma: pooled data from two randomised placebo-controlled studies. Thorax. 2015. | <sup>5</sup> WHO Hepatitis B Fact Sheet, 2015. | <sup>6</sup> Messina JP., et al. Global Distribution and Prevalence of Hepatitis C Virus Genotypes. Hepatology. 2015.

## Forward-looking partnerships

### *Mutual benefits through collaboration*

External innovation is crucial to our strategy of bringing innovative treatments to patients in areas of unmet medical need. We currently manage over 200 partnerships worldwide. Partnered products contribute over a third of our Pharmaceuticals sales, and 35% of our R&D pipeline compounds are externally sourced. Our science- and business-savvy partnering teams work closely with internal R&D to gauge needs and gaps.

At the same time, they closely follow emerging companies around the globe, on academic advances and on other alliance opportunities, screening thousands of potential partners a year before selecting those that will truly help us raise the bar in drug discovery and development.

In 2015, Roche Partnering signed 61 new agreements, including four acquisitions, four product transactions, 45 research and technology collaborations and eight product out-licensing agreements.

Genentech Partnering and Genentech's Research Contracts group signed 43 new agreements, including three product transactions and 40 research collaborations.

#### **Molecular information and DNA analysis**

Several key deals in 2015 capitalised on the emerging field of molecular information and its rapidly evolving role in targeted medicines and diagnostic solutions. The collaborations established with Foundation Medicine (FMI) and with Flatiron Health mark the

next milestone in Roche's strategy of using high-quality healthcare data and advanced analytics to improve both the development of medicines and decisions in patient care. The collaboration with FMI, in which Roche acquired the majority stake in April 2015, will leverage both companies' strengths to advance the progress in the discovery and development of personalised treatments for cancer patients, and standardise data collection/analysis in both clinical trials settings and in clinical practice.

The collaboration also includes the development of companion diagnostics based on next-generation sequencing, which enables comprehensive genetic profiling on the basis of limited amounts of cancer tissue. This strategic agreement makes FMI organisationally part of the global Roche Pharmaceuticals Division, but FMI retains operational independence to foster their innovative energy and entrepreneurial spirit.

We are among the first ten pharma and biotech companies that came forward to create the GENE Consortium. Genomics England announced this new collaboration as part of the 100,000 Genomes Project, to accelerate the development of new diagnostics and treatments for patients.

Genentech Partnering signed two other molecular information collaborations that will help identify new drug targets and biomarkers, as well as provide insights about who is likely to get a disease and how it progresses. Genentech will be using Human Longevity, which has established the largest human

genome sequencing centre in the world, to sequence and analyse tens of thousands of de-identified DNA from clinical trials across therapeutic areas.

Another exciting collaboration is with 23andMe, to analyse whole genome sequencing data for approximately 3,000 individuals in the 23andMe Parkinson's disease community and their immediate family members to find potential drug targets for the disease, which currently has no cure.

#### **Infectious diseases**

Roche has a strong legacy in antibiotics. Two antibiotic products developed by Roche are listed in the WHO Essential Medicines List. The current research strategy in infectious diseases focuses on areas of high unmet medical need, and the incidence of drug-resistant infections is creating an urgent demand for new therapeutic options. Early in 2015 Roche, Meiji Seika Pharma and Fedora joined forces to tackle the increasing bacterial resistance to antibiotics, when we licensed an investigational, next-generation  $\beta$ -lactamase inhibitor, RG6080. This compound targets  $\beta$ -lactamase enzymes in combination with new or existing  $\beta$ -lactam antibiotics to enhance their

effectiveness in difficult-to-treat bacterial infections. The novel  $\beta$ -lactamase inhibitor RG6080 has the potential for an expanded spectrum against multi-drug resistant bacteria. The clinical development programme is on track, enabled by the efficient and trusted collaboration with the partners in this programme. In a phase I trial, RG6080 is being studied for the treatment of severe infections caused by Enterobacteriaceae spp.

#### **Partnerships in cancer immunotherapy**

In 2015, Roche initiated a number of clinical collaboration studies with external partners to combine our lead cancer immunotherapy drug atezolizumab in a broad number of tumour types (see table).

#### **Innovation in procurement**

In our Pharmaceuticals Division we built an Innovation Centre of Excellence to collaborate closely with key suppliers on innovation. 52 innovation business cases were approved by the end of 2015 versus the target of 45, and 49 business cases have been launched since the initiation of this approach in 2012.

#### **Clinical trial collaborations in cancer immunotherapy including atezolizumab**

Disease	Investigational medicine	External partner
Non-small cell lung cancer	Mutant-selective EGFR inhibitor rociletinib	Clovis Oncology, US
Triple-negative breast cancer and colorectal cancer with liver metastases	Immunotherapy talimogene laherparepvec or T-Vec	Amgen, US
Soft-tissue sarcoma	CMB303	Immune Design, US
Renal cell carcinoma	CD27-targeting antibody varilumab	Celldex Therapeutic, US
Triple-negative breast cancer	Entinostat	Syndax Pharmaceuticals, US
Advanced solid tumours	CPI-444	Corvus Pharmaceuticals, US

*Personal perspective*

*“It’s exciting to work at the juncture of genomics and medicine.”*

*Kim Pelak, PhD, Data Scientist,  
Foundation Medicine*

## **Unlocking cancer’s genetic code**

The revolution in genomics began to fascinate me when I was in middle school in the 1990s. Scientists spoke then about the enormous potential for personalised healthcare—but it was still largely hypothetical.

Today at Foundation Medicine, we are on the cutting edge of translating each person’s unique tumour profile into personalised therapeutic options for treating her or his cancer. And, that is the basis for our strategic partnership with Roche.

We first sequence the genome of the patient’s cancer using blood or tumour tissue, then search for genetic variants that play a role in various types of cancer. Our curators then sift through huge databases to match those findings with targeted therapies, including those being studied in thousands of ongoing clinical trials.

The majority of our patient reports are potentially actionable—they give options to the treating physician and hope to the patient. And, we have already sequenced the tumours of over 60,000 individuals.

Historically, oncologists have primarily been interested in the tissue from which the cancer originated; for example, breast cancer was treated differently from colorectal or esophageal cancer. Today, we know that all three cancers, and others, can be driven by the same molecular malfunctions and potentially treated with the same targeted therapy. That’s why Foundation Medicine tests for genomic variants across a patient’s genome, regardless of the type of cancer.

Sometimes, we get a chance to see the impact of our work. I remember a presentation from one female patient, a marathon runner in the prime of her life who was suddenly diagnosed with stage IV lung cancer and bone metastases. My colleagues sequenced her tumour and found a genetic variation which had a corresponding targeted therapy. With this treatment,

*“In most of our patient reports, we can match a tumour profile with a targeted therapy or ongoing trial.”*

the patient was able to continue her active lifestyle. Not all of our outcomes are that positive, but it is deeply gratifying to know our work can have an immediate impact on a cancer patient’s treatment.

I am now involved in developing decision support tools that will help more patients benefit from our methodologies, as well as our vast molecular information knowledge base. For example, I worked on a reporting tool to empower pathologists to create their own reports by further customising our content for their patients.

Our genomic tests are now being used in Roche clinical trials for a breakthrough cancer immunotherapy. Our molecular information can also play a key role in identifying novel drug targets. It’s an incredibly exciting time to work at the juncture of genomics and medicine, and I am grateful to be part of it.



*“Our data can contribute to R&D and molecularly match patients with appropriate trials and therapies.”*

## Innovative approaches for new medicines

### *New insights and new procedures*

#### Using real-world data to inform R&D decisions

From clinical trials, patient registries, hospitals, healthcare providers, insurance companies, and even online health sites and smartphone apps, there has been an explosion of healthcare information in recent years. Add to this genomic data we generate internally or which is produced by a plethora of biotech companies that can cheaply sequence the human genome in a short time at a relatively low cost. If used appropriately, this health-related Real-World Data (RWD) can be a powerful resource, providing invaluable insight into medicines, diseases and impacts of treatment over time.

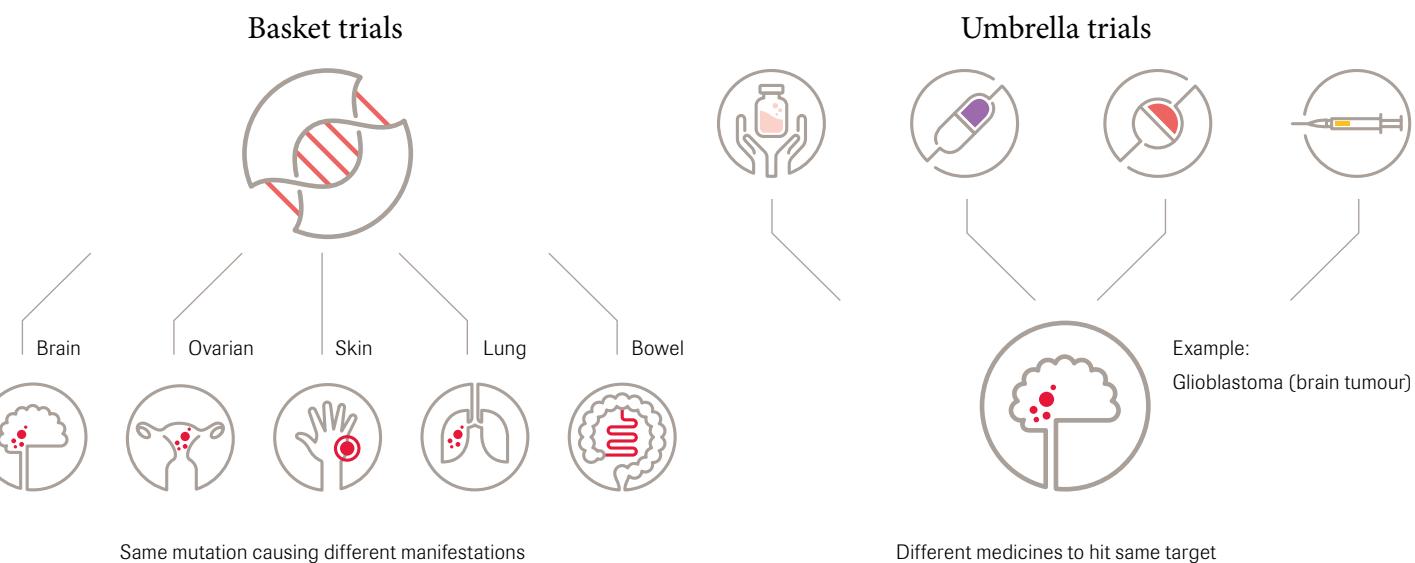
However, RWD is vast and complex, and varies dramatically in quality and reliability. So how can it be captured, managed and analysed to truly support research and ultimately improve patient care? In a nutshell: by driving the science. As one of the first healthcare companies to integrate RWD in a meaningful way into drug development, we are doing just that. Our Real-World Data Science (RWD-S) group, created in 2014, will grow strongly over the next year. RWD-S biostatisticians have become vital collaborators on our R&D teams. They cull, extract and deliver relevant,

validated, standardised information that helps our researchers generate hypotheses and improve patient outcomes.

Molecular data from partnerships—like with FMI to sequence tumours and DNA in cancer patients or 23andMe to sequence the DNA of 3,000 patients with Parkinson's disease—are supporting our research focus and helping us understand disease at its most fundamental cellular level so we can develop the best therapies and combinations of therapies for patients. High-quality data is critical in informing our research and helping us design or evaluate our innovative clinical trials.

Beyond the clinic, today's healthcare landscape demands holistic real-world information across the lifecycle of products. Increasingly, reimbursement decisions worldwide are based on whether new medicines bring added benefit above the standard of care to patients in their daily lives. Do regional or cultural differences affect treatment? Is the impact different in the elderly? Our RWD-S group is helping address these data gaps, as well as questions of data standardisation, compatibility and privacy that are common in technology frontiers. Leveraging our expertise in both pharmaceuticals and diagnostics, and our strong relationships with key industry partners, we want to take best advantage of the ocean of informational opportunity swirling around. Real-World Data is still a young discipline, but we believe it will become a crucial part of achieving optimal patient benefit.

*Molecular data support our research and help us to understand diseases at their cellular level.*



#### Baskets, umbrellas and other clinical trial designs

All new medicines or combinations of medicines must be fully tested before they can be made broadly available. However, the era of targeted therapies is ushering in new ways to perform these studies. The decades-old approach of using phase I, II and III clinical trials is giving way to cutting-edge study designs that more realistically and effectively allow us to evaluate promising compounds in the patients for whom they are targeted.

Among the pioneering studies we have underway is a first-of-its-kind 'basket' study on Zelboraf. This approach puts other than metastatic melanoma BRAF mutation-driven tumours, including brain, lung, colon and ovarian, in a single study—or basket—and allows us to simultaneously evaluate whether Zelboraf is effective in treating different cancers. Traditionally, this would require separate trials for each tumour type. Zelboraf is currently approved for metastatic melanoma caused by the BRAF mutation.

We are also involved in an ambitious multi-partner public trial that is testing several drugs under the 'umbrella' of the same tumour type: glioblastoma. Patients will be treated with different medicines, including five of our marketed and pipeline drugs, based on the genetic mutation most prominent in their tumour. This personalised approach not only increases the probability of treatment success, it will provide invaluable data on which of the targeted medicines are the best candidates for specific mutations. Both of these approaches upend the

industry's long-held, step-by-step development process. Even in more traditional clinical trials, we are abandoning linear, time-constrained protocols in favour of 'adaptive' study designs that build in the ability to alter aspects of an ongoing trial based on patient responses and new scientific understanding.

In parallel, new clinical endpoints are being introduced to assess the impact of investigational medicines, for example the 'pathological complete response.' Medication is given prior to surgery and if the pathologist confirms that no vital cancer cells can be found in the tissue sample taken during surgery, the status of complete response is confirmed. This approach has already been shown to bring new treatment strategies to patients much faster. While it took about eight years for Herceptin to get approved for pre-surgical (neoadjuvant) treatment, the comparable Perjeta approval took only a year and a half.

Going beyond the strict medical focus, we are looking at the whole patient. In one of the first-ever trials to examine personal preference for a cancer therapy, an ongoing study is comparing whether patients with HER2-positive early breast cancer would rather have Herceptin administered subcutaneously or intravenously.

Whilst it is a complex matter to design this new wave of innovative trials, we are committed to breaking ground in driving data generation and accelerating drug development so the right therapies can rapidly be delivered to the right patients.

# Innovation in Roche Diagnostics

## *Improving efficiency and patient care*

### Testing drug-resistant organisms

The acquisition of GeneWEAVE provides us with Smarticles technology, an innovative new class of molecular diagnostics that quickly identifies multidrug-resistant organisms (MDROs) and assesses antibiotic susceptibility directly from clinical samples, without the need for traditional enrichment, culture or sample preparation processes. The first system in development, vivoDx, is a fully automated, random-access system designed to rapidly meet the needs of laboratories addressing MDRO detection and antibiotic therapy guidance. The technology is being evaluated in multiple sites across the US.

### Advancing multiplex technologies

In an era of cancer immunotherapy, and in view of the increasing need to test several biomarkers to inform clinical decisions, it is becoming critical to detect multiple biomarkers on a single slide while preserving tissue context, especially when tissue is limited. Whilst conventional staining in anatomical pathology is typically limited to one or two biomarkers, we have developed a series of proprietary chromogenic stains for brightfield microscopy and a series of fluorescent stains for darkfield microscopy that extend multiplexing capability.\* In addition to increasing the number of simultaneously detected biomarkers, these reagents permit highly sensitive detection of co-localised biomarkers, critical to identifying tumour heterogeneity and characterising immune cell infiltrates.

Utilising these new reagents, our experts across Roche Diagnostics and the Pharmaceuticals Division are working on developing foundational multiplex technologies that can be translated into new multiplex product opportunities. The strategy is to develop modular technologies that can accommodate a wide range of biomarker expression and detect biomarkers located in the same cellular compartment (e.g. both in the nucleus) whilst providing results in a timely manner on a single specimen. Digital pathology is an integral part of this process as imaging and algorithm development become critical for rapid and accurate interpretation of complex staining patterns.

We are currently developing a model immune panel detecting expression of CD3, CD8, CD20, CD68 and FoxP3 markers and related panels that include detection of PD-L1. Work streams encompass both darkfield (5-10-plex) and brightfield (2-4-plex) assay formats that use unmodified and modified primary antibodies as well as amplified and non-amplified detection schemes. Progress is very promising for providing our customers with a best-in-class multiplexing solution for effective disease management.

### Continuous management of diabetes

Our newly developed continuous glucose monitoring (CGM) system is designed to provide ongoing glucose measurements. It comprises a glucose sensor that remains in the body for seven days and a controller/receiver. This system measures the glucose levels every

minute in the subcutaneous tissue. People with diabetes can then check the data as needed, using a wirelessly connected receiver: the current glucose value, the trend arrow, the glucose curve and their diary.

This technology minimises the numbers of fingerpricks needed compared to current standard approaches. It also provides an extensive amount of data and trend information. Of particular importance are the programmable alarms so that the person with diabetes gets alerted if the glucose values rise or fall too quickly. This is essential for people who are not able to feel if they are becoming hypoglycemic as they suffer from so-called 'hypoglycemia unawareness.' This can be especially dangerous during nights and affects a significant number of people with diabetes on insulin therapy.

In first clinical studies, our innovative sensor was able to demonstrate that the insertion and wearing of the sensors was overall well tolerated.<sup>7</sup> In addition, the results were promising regarding a very high level of sensor accuracy and precision, especially in the hypoglycemic range.<sup>8,9</sup>

### Next-generation sequencing

The acquisitions and partnerships initiated over the past two years are positioning us to develop the best-in-class technology across the next-generation

sequencing (NGS) workflow with top talent. We continue to invest in leading technology and develop products that will ultimately become integrated into a seamless end-to-end sequencing solution. Our pipeline technologies address every point in the sequencing workflow, and include sample preparation technologies, single-molecule sequencers, and data and analytics management tools.

Our recent acquisition of Kapa Biosystems strengthens our portfolio in the area of sample preparation. The foundation of Kapa's technology is custom enzyme evolution. This technology allows for the generation of enormous libraries of enzyme variants, from which ideal forms of the enzyme can be rapidly selected, expediting product development timelines. Other 2015 investments, including Signature Diagnostics and the Lumora heat elution technology, complement our growing NGS portfolio and reinforce our long-term vision to provide customers around the world with a comprehensive genetic testing solution.

### Turning data into information

We are actively exploring the opportunities for our diagnostics business in the area of big data. These include the use of aggregated diagnostics information to improve the quality of patient care and make research and development more efficient, but also the use of big data in optimising the business of the laboratory itself.

\* Available for research use only. Not for use in diagnostic procedures. | 7 Roche Diabetes Care. Summary Clinical Investigation Report, Study No. ATOS0111. | 8 Freckmann G., et al. Performance Evaluation of Three Continuous Glucose..., J Diabetes Sci Technol, 2013. | 9 Zschornack E., et al. Evaluation of the Performance of a Novel System for Continuous Glucose Monitoring, J Diabetes Sci Technol, 2013. | [www.roche.com/rnd\\_locations](http://www.roche.com/rnd_locations) | [www.roche.com/research\\_technologies](http://www.roche.com/research_technologies) | [www.roche.com/pipeline](http://www.roche.com/pipeline)



## Access to healthcare

We believe it's urgent to deliver medical solutions right now, even as we develop innovations for the future. That's why we are committed to working with partners at the local level to overcome barriers and improve access to tests and medicines for all patients.

# 189

*patient group delegates*  
from 41 countries attended our largest patient organisation meeting

# O

*ur aim is for every person who needs our medicines and diagnostic tests to be able to access and benefit from them.*

Significant breakthroughs in diagnosing and treating serious diseases, as well as improvements in the delivery of healthcare, have steadily improved health outcomes and increased life expectancy in recent decades. However, universal access to medical innovation and quality healthcare remains a global challenge.

That challenge is complex and multifaceted. Healthcare resources and the demands on those resources vary widely from country to country, and even within countries. In some regions, the most sophisticated new medicines and diagnostic tests are readily available, whilst in others, the healthcare infrastructure is so limited that basic medical care is still a luxury.

We believe that it is critical to uncover the root causes that are limiting access at the local level, to be able to implement solutions that will make meaningful differences. In 2015, we rolled out our Access Planning Framework, resulting in improved insights into specific regional and national challenges at the local level and

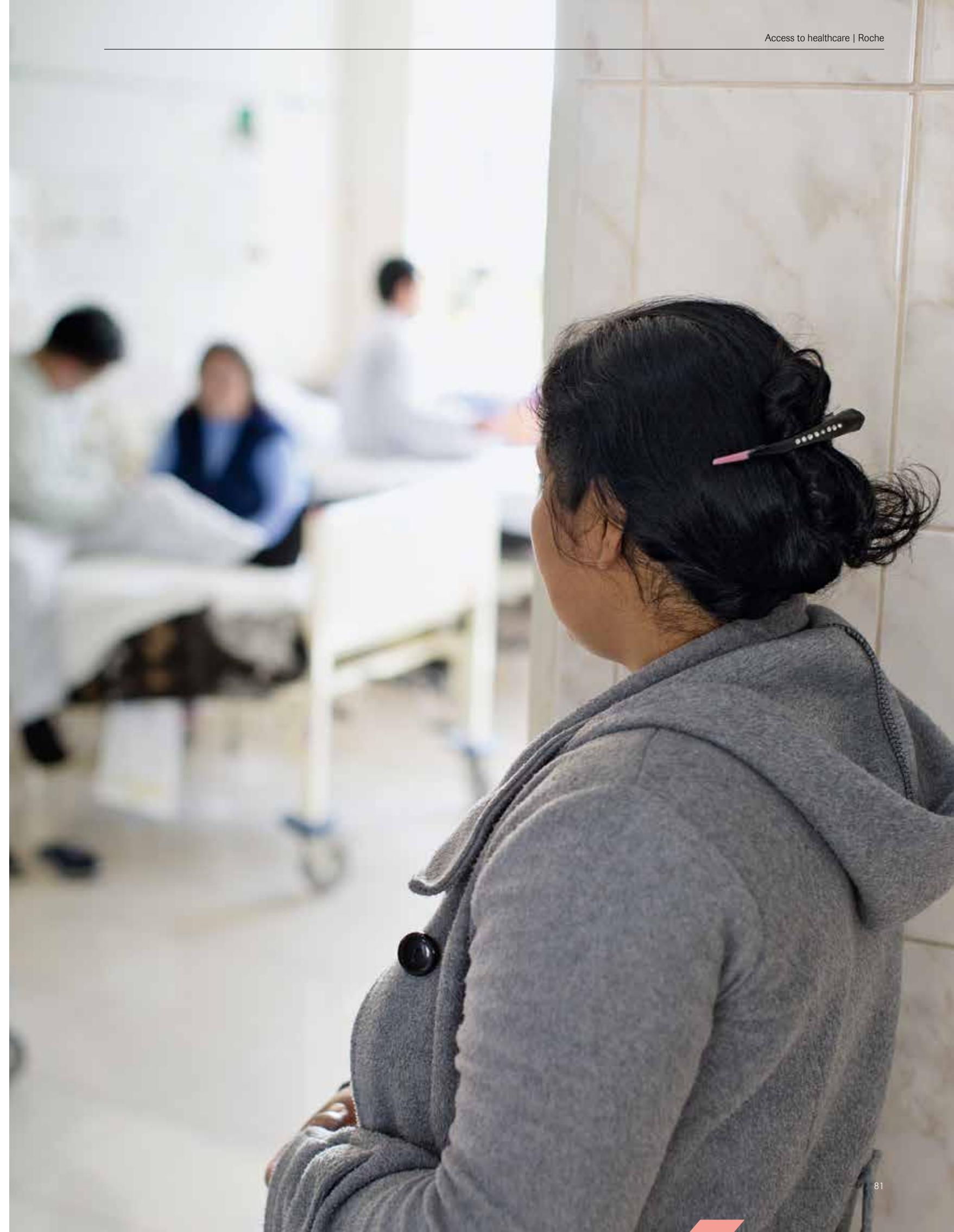
*We have established partnerships with four re-insurers and 16 local insurance companies to improve cancer care for millions of people across China.*

tailored plans to address them. We have implemented several successful partnerships and initiatives in our four key areas of focus: increasing awareness, strengthening infrastructure, improving affordability and delivering innovation.

#### **A multi-stakeholder approach**

Our innovative products deliver value through therapeutic as well as economic benefits. For example, many of our products can make healthcare delivery more efficient by improving the mode of administration, or reducing the time patients spend in the hospital. In addition, advances in science have led to personalised healthcare, where an accompanying diagnostic test is used to identify patients most likely to respond to a specific medicine. This helps to optimise the benefit for patients and ensure more efficient use of healthcare resources.

It requires all players—public authorities, non-governmental stakeholders, patient organisations, local communities, the healthcare industry and others—to work closely together. Whilst governments have primary responsibility for establishing and maintaining healthcare systems, the healthcare industry plays an important role in improving health. As a global healthcare company, Roche shares a responsibility to tackle the challenges of improving health outcomes.



## Taking on a global challenge

### *Improving access country by country*

A rise in chronic diseases, combined with an ageing population, growing unemployment and economic pressures, further aggravate inequalities in access to healthcare, leading to very poor outcomes in some regions of the world.

Take the impact of cancer in South East Asia for example. Cancer is among the biggest causes of morbidity worldwide, causing 8.2 million deaths in 2012 alone.<sup>1</sup> In the next two decades, 70% of global cancer mortality is predicted to occur in low- and middle-income countries, with half of these deaths occurring in South East Asia.<sup>2</sup>

According to the ACTION (ASEAN Costs in Oncology) study, in this region, more than 75% of people experience death or financial catastrophe within a year of a cancer diagnosis.<sup>3</sup> Urgent action is needed to protect populations from the financial burden of disease and to reduce the impact of loss of economic productivity.

Our aim is for every person who needs our products to be able to access and benefit from them. For this to happen, several conditions need to be in place, including disease awareness, adequate healthcare infrastructure and sufficient medical coverage. We are committed to working with our stakeholders to improve outcomes across the access spectrum.\*

#### Sustainable solutions, tailored locally

There is no one-size-fits-all solution, and no single stakeholder can tackle access challenges alone. Therefore we work with many partners to continuously and sustainably reduce the barriers that prevent or limit people from benefiting from our products. These barriers may include a lack of disease awareness, screening and diagnosis, fundamental infrastructure including adequately trained healthcare professionals, and the availability of treatments and adequate care. Other factors such as geographical, political, financial and cultural barriers can make effecting change incredibly challenging.

Our approach is tailored to the individual healthcare needs of each country, rather than a single, top-down approach. We provide comprehensive solutions to increase awareness of diseases and healthcare options, strengthen healthcare infrastructure in partnership with local stakeholders and improve the availability and affordability of our products.

In 2015, we saw great engagement, commitment and creativity to shape access plans that have the potential to make diagnostics and medicines available to many more patients around the world. Following the global roll-out of workshops, we have now developed more than 60 country-specific access plans. These plans analyse the various hurdles encountered in each



The delivery of quality healthcare is complex and involves a number of stakeholders. We are working with partners at the local level to address the challenges and help establish sustainable solutions.

country along a patient's journey to receiving optimal treatment, map the critical stakeholders and shape the strategies and tactics to overcome these hurdles.

To ensure the sustainability of this approach, the plans are directly connected to the business and linked to both the commercial strategy and local management's annual goals. We have also focused on building our local functional expertise to strengthen engagement with stakeholders in dynamic healthcare environments and ultimately ensure the successful implementation of the access plans.

#### Strengthening national cancer plans

One effective way to address the burden of cancer is through national prioritisation and integrated local planning.<sup>4</sup> For example, in Poland, where cancer treatment outcomes are among the poorest in Europe, we worked with several partners including the Polish Society of Oncology to demonstrate the need to improve cancer care.<sup>5</sup> The 'White Book of Polish Oncology' report highlighted gaps in treatment and access to medicines, triggering high-level debates with many stakeholders on developing of a sustainable improvement strategy. This resulted in a Ministry of Health-approved publication of a National Comprehensive Cancer Strategy, which represents a major step forward in cancer care for the country.

\* [www.roche.com/access\\_to\\_healthcare](http://www.roche.com/access_to_healthcare) | 1 WHO Cancer factsheet, 2015. | 2 IARC, GLOBOCAN: Estimated Cancer Incidence, Mortality and Prevalence Worldwide, 2012. | 3 Kimman M., et al. ASEAN Costs in Oncology, 2015. Published by the George Institute for Global Health with the support of an unrestricted educational grant from the Roche Asia-Pacific Regional Office. | 4 UICC National Cancer Control Planning for Non-Governmental Organisations, 2006. | 5 EUROCARE European Journal of Cancer, 2009.

# Shifting the access paradigm in Africa

## *Establishing long-term solutions*

The African continent is developing quickly, with the GDP expected to increase by 5% in 2016.<sup>6</sup> Significant strides have been made in improving health outcomes in many countries. However, major challenges remain, particularly in sub-Saharan Africa.

Poor outcomes persist in sub-Saharan Africa for a multitude of reasons, including low disease awareness, late presentation of patients with disease, limited quantity and poor quality of healthcare institutions, lack of medical specialists, uncertain supply chain quality, low government priority, little to no local prevalence data and limited funding.

Over 150 million people had hepatitis B in sub-Saharan Africa in 2012, whilst 400,000 women were diagnosed with breast cancer and an estimated 54,000 women die from cervical cancer in Africa every year.<sup>7</sup> We are committed to improving outcomes in these disease areas across the region.

### Taking a holistic approach

Our Africa Strategy is one part of our overall strategy to analyse access barriers on a country-by-country basis and develop tailored solutions with local partners. We aim to increase access to our innovative treatments for patients in sub-Saharan Africa whilst creating a long-term sustainable business environment. We conducted an in-depth analysis of countries in Africa using a multitude of factors such as disease incidence, urban population growth, middle-class emergence, healthcare spend and government focus on healthcare.

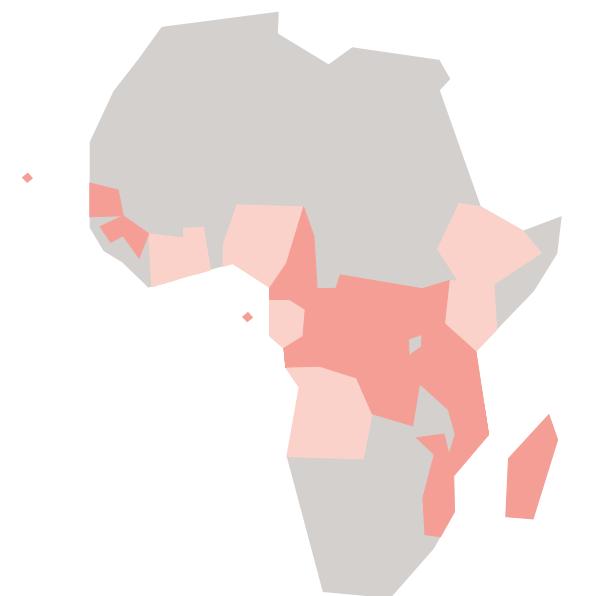
From this initial analysis, it was decided to focus on 20 countries.

We commenced the strategy in 2015 in seven countries: Nigeria, Ghana, Kenya, Côte d'Ivoire, Angola, Ethiopia and Gabon. We are implementing a wide selection of activities in collaboration with local partners, including healthcare system strengthening, such as local data generation, advocacy for healthcare prioritisation, and building infrastructure; disease management support, such as awareness, advocacy campaigns and treatment guidelines; education and market access solutions, such as healthcare professional training, private health insurance with local companies and price-volume agreements with governments.

### Breakthrough agreement in Côte d'Ivoire

With more than 2,000 new cases per year, breast cancer is the leading cancer in women in the Côte d'Ivoire. In most cases, the disease is only detected after the cancer has become advanced.<sup>8</sup> Meanwhile, Hepatitis B is the first cause of liver cancer in the country, with a prevalence of 13%.<sup>9</sup>

In 2015, Roche commenced a new programme in partnership with the Côte d'Ivoire Ministry of Health to improve access to tests and innovative medicines. In this comprehensive approach, Roche is supporting the government to raise disease awareness, train healthcare professionals and build diagnostic capabilities. Regarding treatment, patients pay a minimal portion of the cost, with the government



Africa Strategy

#### Initial implementation

Nigeria, Ghana, Kenya, Côte d'Ivoire, Angola, Ethiopia, Gabon

#### Ongoing outreach

Uganda, Senegal, Cameroon, Mauritius, Tanzania, Madagascar, Rwanda, Congo RDC, Congo RC, Mozambique, São Tomé and Príncipe, Equatorial Guinea, Cape Verde

Through the Africa Strategy, we are focusing on 20 countries where we aim to increase access to our innovative treatments for patients whilst creating a long-term sustainable business environment.

and Roche covering the remainder. The programme aims to treat an additional 3,000 patients with viral hepatitis and about 1,000 women with breast cancer over five years.

### Increasing access to HIV diagnostics

The Africa Strategy builds upon the successes of other Roche access programmes, such as our efforts to improve HIV testing worldwide. As the leading provider of HIV viral load testing, Roche has a long-standing commitment to expanding access to HIV diagnostics around the world.

Most people living with or at risk of contracting the disease, do not have access to adequate prevention, treatment or care. Improving laboratory capacity is critical in order to ensure that people living with HIV have access to the diagnostic tests, monitoring and treatment they need.

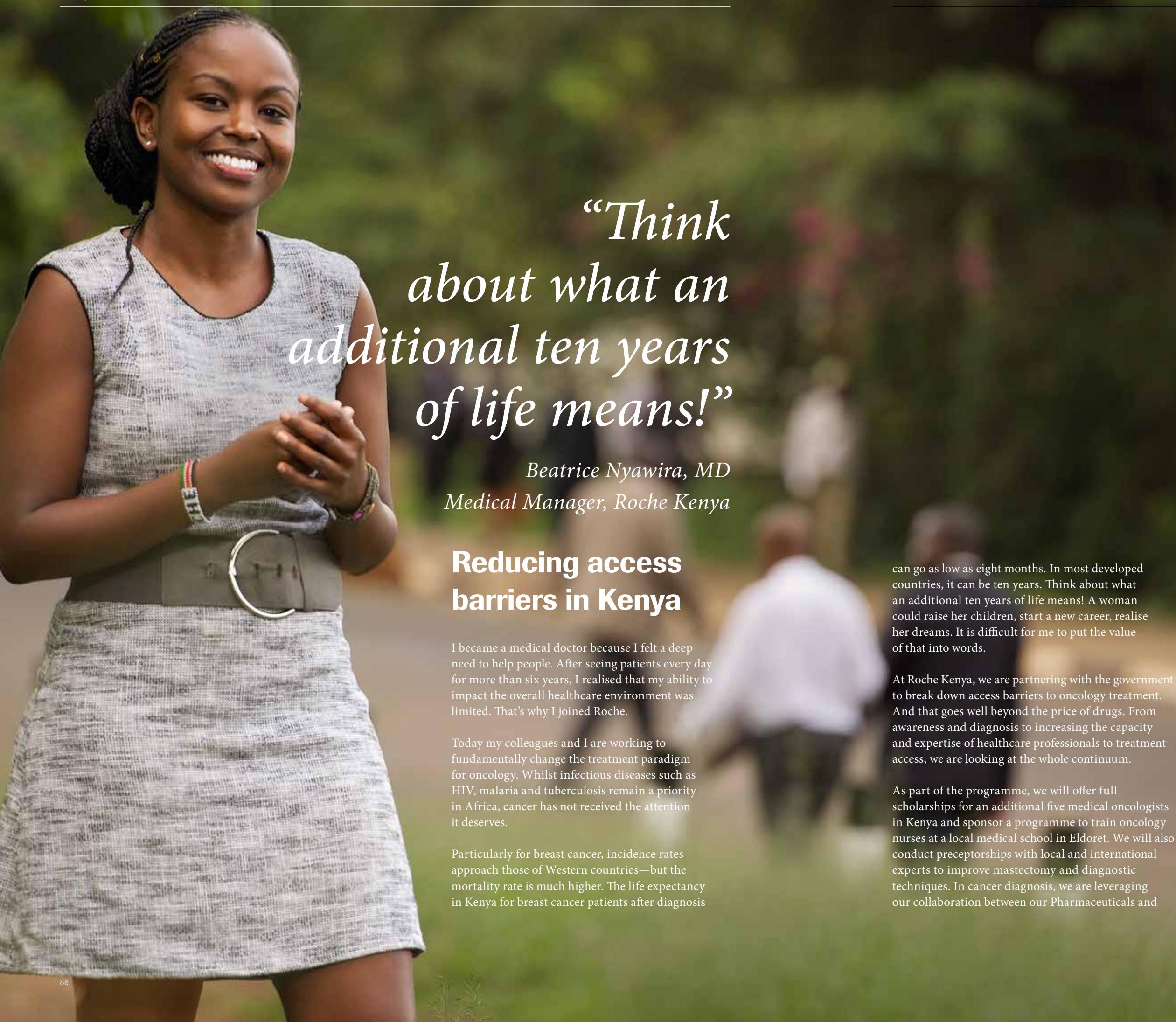
In January 2015, we launched the HIV Global Access Programme, offering sustainable solutions for HIV viral load tests in eligible low- and middle-income countries. The programme covers 82 countries and close to 90% of the global population of people infected with HIV. Beyond this, the programme also covers early infant HIV testing. A timely HIV infant diagnosis greatly improves disease management and outcomes of HIV-infected infants. Roche's early infant

diagnostic test provides dried blood spot testing—a simple, innovative method for collecting, transporting and storing patient samples in resource-limited settings. The HIV Global Access Programme expands our commitment to providing viral load and early infant diagnostics through affordable price offerings in countries with the highest disease burden, primarily across Africa.

By increasing access to viral load and early infant HIV testing, we are helping to strengthen diagnostic capacity and improve the quality of HIV treatment services. This helps to support the global UNAIDS goal of ensuring that 90% of all people receiving antiretroviral therapy achieve viral suppression.

This programme is run in partnership with the Joint United Nations Programme on HIV/AIDS, the Clinton Health Access Initiative, UNITAID, the US President's Emergency Plan for AIDS Relief and the Global Fund to Fight AIDS, tuberculosis and malaria.

*Since 2002, over seven million infants have been HIV-tested through a Roche Diagnostics global access programme.*



# “Think about what an additional ten years of life means!”

*Beatrice Nyawira, MD  
Medical Manager, Roche Kenya*

## Reducing access barriers in Kenya

I became a medical doctor because I felt a deep need to help people. After seeing patients every day for more than six years, I realised that my ability to impact the overall healthcare environment was limited. That's why I joined Roche.

Today my colleagues and I are working to fundamentally change the treatment paradigm for oncology. Whilst infectious diseases such as HIV, malaria and tuberculosis remain a priority in Africa, cancer has not received the attention it deserves.

Particularly for breast cancer, incidence rates approach those of Western countries—but the mortality rate is much higher. The life expectancy in Kenya for breast cancer patients after diagnosis

can go as low as eight months. In most developed countries, it can be ten years. Think about what an additional ten years of life means! A woman could raise her children, start a new career, realise her dreams. It is difficult for me to put the value of that into words.

At Roche Kenya, we are partnering with the government to break down access barriers to oncology treatment. And that goes well beyond the price of drugs. From awareness and diagnosis to increasing the capacity and expertise of healthcare professionals to treatment access, we are looking at the whole continuum.

As part of the programme, we will offer full scholarships for an additional five medical oncologists in Kenya and sponsor a programme to train oncology nurses at a local medical school in Eldoret. We will also conduct preceptorships with local and international experts to improve mastectomy and diagnostic techniques. In cancer diagnosis, we are leveraging our collaboration between our Pharmaceuticals and

*Personal perspective*

*“As part of our strategy to increase local expertise, Roche is providing full scholarships for five medical oncologists.”*

Diagnostics Divisions. For example, we are installing a tissue diagnostics machine at a public cancer treatment centre. Additionally, we will provide training to pathologists and technicians.

We are also committed to assisting the Ministry of Health in gathering accurate data on cancer through cancer registry development. We are partnering to support training and provide infrastructure including laptops and software. Good data will provide a clearer picture of the actual disease burden and inform policy for resource allocation. In addition, we are partnering with the government through a public healthcare programme to increase access to some of our innovative breast cancer medicines.

Everything is coming together. Cancer is finally getting a voice through media and advocacy and the government is open and willing to act. Our commitment could not have come at a better time. I truly believe that we can make a huge difference in improving cancer treatment in Kenya.



*“We are forging new partnerships to change the paradigm for diagnosis and treatment of breast cancer.”*

## Working within healthcare systems

### *Increasing access to tests and medicines*

When bringing a product to market, we work closely with governments, insurers and other healthcare providers to determine its value. This enables us to demonstrate the value of the product to patients, their families, healthcare professionals, payers and society in general, in order to gain appropriate reimbursement.

However, we recognise that despite improvements in healthcare infrastructure and funding, innovative medicines and diagnostics remain beyond the reach of many patients in need. Therefore we are exploring new pricing and access models that are tailored to the dynamics of each healthcare system, rather than a uniform pricing structure. These innovative approaches include personalised reimbursement models, differential pricing, patient assistance programmes and private insurance coverage.

Governments in emerging and developed regions are finding it increasingly difficult to fund access to innovative treatments for cancer and other diseases from public budgets alone. Roche actively supports innovative approaches to improve treatment coverage, including private insurance as a complement to public funding of healthcare.

#### **Expanding private insurance coverage in China**

In China, a very small portion of the population has a health insurance policy that covers the costs of cancer treatment. Roche teamed up with four re-insurers and 16 local insurance companies, including the three largest, to help them develop policies that will cover cancer treatment and care. This enabled companies

to determine an appropriate pay-out for treatment and to launch affordable cancer insurance policies that cover the best available treatment, access to hospitals and doctors, and cancer education and support. Approximately 40 million policies have since been sold in China.

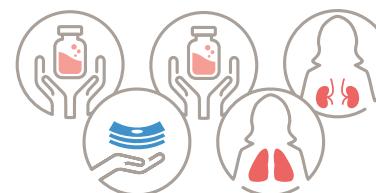
In October 2015, Roche signed a contract with a large insurance company in Shenzhen—a city with a population of 11 million people—to ensure Avastin is on the reimbursement list for metastatic colorectal cancer. Shenzhen has now become the first city in China where all four of Roche's targeted therapies which are approved in the country (MabThera/Rituxan, Avastin, Herceptin and Tarceva), are reimbursed. Roche is aiming to significantly increase the patient access rate in China for Herceptin and MabThera/Rituxan over the next two years.

#### **New access initiatives in Europe**

Meanwhile in Portugal, due to budget constraints across the public sector, access to innovative treatments via the national system has become increasingly difficult. Roche investigated public-private partnerships and started to work with the two most important health insurance companies in the country, expanding the insurance companies' coverage to help close the funding gap.

In October 2015, the health insurance market leader introduced the first-ever private health scheme for cancer in Portugal, covering the entire spectrum of care from monitoring of the disease and treatment

## Personalised reimbursement model framework



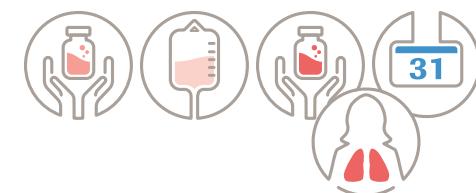
### **Multiple indication pricing**

Allows a medicine to be priced according to the benefit it delivers in different indications.



### **Combination pricing**

Ensures the benefits of a combination therapy are reflected, whilst taking into consideration the limits of healthcare budgets.



### **Pay for response**

Bases the level of reimbursement on a patient's response to a medicine over a specified time period.

This approach allows price differentiation to reflect the benefit the treatment delivers to patients.

to palliative care. This partnership is likely to trigger similar arrangements in the coming months.

#### **Personalised reimbursement models**

Whilst most reimbursement today is based on an undifferentiated price per item, personalised reimbursement models (PRMs) allow medicines to be priced according to the benefit they deliver.

Our PRM framework includes multiple indication pricing, allowing medicines to be priced according to the benefit they deliver in different indications; combination pricing, where the benefit of the combined therapy is reflected whilst taking into account budget constraints; and pay for response, where reimbursement is based on a patient's response to a medicine over a specified time period.

PRMs are now being introduced across Europe, with 26 markets already taking part. For example, in France, we initiated the pilot phase in 14 hospitals in 2014 to validate the feasibility of the PRM approach for breast cancer treatment. In 2015, we scaled up the initiative significantly, and there are now over 80 hospitals in France taking part.

Different pricing models based on the value for the patients can now be considered in countries such as

France, whether based on indication, line of treatment, duration of treatment or treatment combinations.

It all adds up to more choice; national health authorities will have a wider range of potential pricing solutions to discuss with Roche, which will ultimately benefit patients.

#### **A wide spectrum of innovative pricing models**

We have developed several other innovative pricing models, tailored to the needs of patients in different healthcare systems. For example, international differential pricing programmes help to reduce prices for governments to facilitate reimbursement for medicines prescribed through public healthcare systems, with prices based on adjusted GDP per capita for the country in question. Roche believes that price differentiation between countries can improve patient access to innovative medicines in markets with significant access problems.

In some developing regions we sell second brands of our products, which are subject to the same quality control as the original product but under different names and sometimes in slightly different forms, such as in vials rather than syringes. Additionally, patient assistance programmes help to provide access to some of our medicines for underinsured and uninsured patients.

## Partnering with our key stakeholders

### *Elevating the patient voice*

Finding equitable and sustainable solutions to the global barriers to healthcare can only be achieved through persistent commitment and action by multiple stakeholders. To succeed, we must jointly develop innovative, sustainable ways to bring effective and affordable healthcare to people and improve health outcomes.\*

The UN underlined the importance of promoting good health globally in the 2015 Sustainable Development Goals, which Roche supports (see page 94 for more details). A key part of achieving this goal is ensuring universal health coverage, including access to healthcare services, medicines and vaccines for people living in both developed and developing regions.

Roche has joined WHO and other stakeholders in supporting the drive for universal health coverage, and has welcomed the trend toward more evidence-based decision-making in resource allocation. In low-resources settings, it is crucial to target limited health budgets toward the interventions and services that will provide the most benefit and value to the greatest number of people.

In this respect, health technology assessment (HTA) has become a key tool to help countries allocate health resources more efficiently, equitably and based on evidence. We are supporting our affiliates' understanding of this approach and how best to ensure optimal access to innovative treatments at the local level.

#### **Focusing on the societal value of innovation**

At the policy level, we are helping to facilitate a conversation on how to measure the value of new innovative treatments in a climate of cost constraints and limited healthcare budgets. At the 2015 European Health Forum Gastein, a leading health policy conference, we held an interactive session in collaboration with several European health associations\*\* on this topic. The session 'Scoping the value of innovation; Measuring the unmeasurable' attracted a wide range of stakeholders from all levels of health systems.

There was a clear call that a value analysis should not only take into account the price of innovation and clinical outcomes, but should also consider the broader impact on families, communities, employment and the economy.

The value of reducing the burden of cancer on society was also a key theme at the 2015 World Cancer Leaders' Summit, where we joined 250 leaders from United Nations agencies, national ministries of health, patient organisations, academia and private industry. We organised the 'Harnessing the Power of Women to Drive Positive Change in Oncology and Beyond' panel discussion, which investigated the direct and indirect burdens that cancer imposes specifically on women in their roles as family members, caregivers and patients.

The panellists explored ways to harness the growing political power, social and scientific prominence of women to ensure policy prioritisation and action to



We organised the 'Harnessing the Power of Women to Drive Positive Change in Oncology and Beyond' panel discussion at the 2015 World Cancer Leaders' Summit.

improve cancer care access and outcomes for all members of society. In support of this platform, we developed a report on 'Women as Change Agents in Oncology' to further explore how reducing the burden of cancer on women can add value for patients, healthcare systems and society.

**Increasing collaboration with patient groups**  
We take patient engagement very seriously at Roche and endeavour to support patient organisations' objectives where possible.\*\*\* Today, our interactions with patient groups are multifaceted and range from funding organisations and building capacity to organising meetings and supporting advocacy (see page 98 for more details).

The International Experience Exchange for Patient Organisation (IEEPO), Roche's largest global patient organisation meeting, was held in Munich in 2015 and focused on the vital role of patient organisations. A record total of 189 delegates from 41 countries attended IEEPO 2015, and agreed that the potential role patients can play in research, clinical trial design and recruitment, HTA and other aspects of drug development and access, could and should increase significantly.

An international report 'Brain Health: Time Matters in Multiple Sclerosis' aimed at improving outcomes for

people affected by multiple sclerosis, was developed by a multi-disciplinary group of experts and supported with an educational grant from Roche.<sup>10</sup> Presented at the European Committee for Treatment and Research in Multiple Sclerosis in 2015, it recommends policy changes to ensure that people with this disease are able to receive effective treatment early so as to have an impact on the lifelong course of the disease. The recommendations made in the report have been endorsed by a number of professional associations and advocacy groups.

We also supported the patient-driven Idiopathic Pulmonary Fibrosis (IPF) Charter, which calls for decision-makers to take action on improving IPF patients' quality of life as well as to support development of long-term treatments and work towards a cure.<sup>11</sup>

In 2015, we also established a Pre-Approval Access and Medical Ethics group within the Office of the Chief Medical Officer, which focuses on ethical, patient-centred approaches to clinical research and pre-approval access to investigational medicines. Going forward, we aim to increase this valuable exchange and hope to further incorporate the patient perspective in defining the potential value that new innovations can bring to people's lives.

\* [www.roche.com/stakeholder\\_engagement](http://www.roche.com/stakeholder_engagement) | \*\* European Cancer League, European Health Management Association, International Association of Mutual Benefits Societies and European Patients Forum. | \*\*\* [www.roche.com/patient-groups](http://www.roche.com/patient-groups) | 10 Giovannoni G., et al. Brain Health: Time Matters in Multiple Sclerosis, 2015. Published by Oxford PharmaGenesis Ltd with the funding of an educational grant from Roche. | 11 IPF patient advocacy groups. European IPF Patient Charter, 2015. An initiative supported by Roche.



## *Responsible business*

*Compliance is our license to operate and serves as a foundation to build and maintain trust with our stakeholders.*

# 1,000

## *supplier audits*

*conducted at the global and local level*

**W**e have been committed to improving lives for nearly 120 years, led by the spirit of running our business in a socially responsible way.

In 2015, the United Nations General Assembly unanimously adopted 17 Sustainable Development Goals (SDGs) to end poverty, protect the planet, and ensure prosperity for all as part of the 2030 Sustainable Development Agenda. This agreement marks an important milestone in the next phase of sustainable development with the engagement of a wide range of stakeholders.

We are committed to supporting a number of the SDGs in line with our business strategy; in particular SDG3, which aims at ensuring healthy lives and promoting well-being for all. Beyond communicable diseases such as tuberculosis and malaria, non-communicable diseases, including cancer and mental disorders, are also now universally recognised as areas of high unmet medical need. We are at the forefront in developing effective therapies and diagnostic tools to diagnose, treat and monitor cancer and neurological disorders (see page 56 for more details). One objective of SDG3 is to achieve universal health coverage, which is a pre-requisite to achieving better access to safe, effective and high-quality medicines and diagnostic tests for all. By developing innovative approaches in collaboration with international and local players, we strive to break down the access barriers for many patients around the world, supporting the universal healthcare coverage goal (see page 80 for more details).

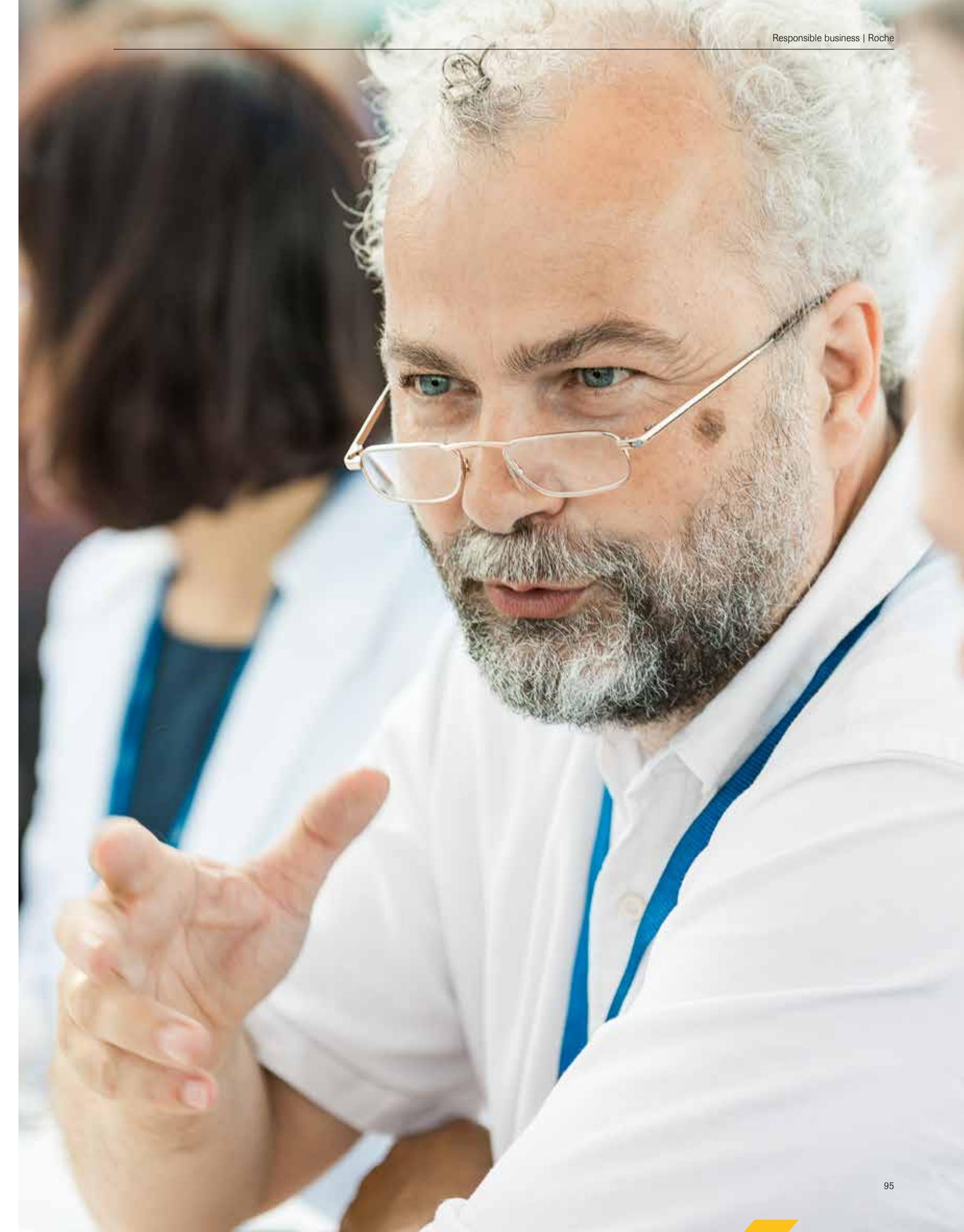
Stakeholder engagement is a key pillar of Roche's comprehensive sustainability management process.\* This allows us to identify and prioritise material

issues, like at our yearly Sustainability Forum, where more than 80 internal stakeholders and some external experts discuss innovations in the supply chain, how to foster access to healthcare, improve sustainability reporting on the affiliate level, and how to enhance employee engagement. For example, Roche sites like Mannheim, Penzberg and Basel have introduced platforms where employees contribute ideas to improve their working environment and processes. More than half of the employees in Mannheim and Penzberg worked on more than 1,100 continuous improvement activities in 2015. Additionally, employees submitted about 1,000 ideas leading to savings of over EUR 4 million. They mainly resulted from waste reduction in Pharma and Diagnostics manufacturing as well as general optimisation of manufacturing and logistics.

#### **Compliance is our license to operate**

We take our responsibilities seriously in order to meet high standards of business ethics and integrity. This is instrumental to our sustainable success, and hence to our ability to make a lasting impact on public health. Integrity at Roche means doing things right from the start. We strongly believe that people are the most important success factor for compliant behaviour. It starts with line managers having the right mindset, and being responsible for the careful selection, instruction and monitoring of their teams. But compliance goes beyond line management. Every employee is accountable for his or her own behaviour. This approach forms the foundation of our comprehensive compliance management system.

\* [www.roche.com/stakeholder\\_engagement](http://www.roche.com/stakeholder_engagement)



### Fostering a culture of compliance

Our expectations of our employees are expressed in the Roche Group Code of Conduct. It is designed to set the standards for our business behaviours and provide guidance to our employees. In 2015, we launched the revised Roche Group Code of Conduct,\* which helped to further foster the awareness that integrity is of utmost importance within our organisation. In addition, a new version of an e-Learning course to support good records management practices was introduced in 2015. Records management is one component of Roche's Code of Conduct and defines how to create, manage, retain, and discard records in accordance with the laws and regulations of the countries in which we operate. This training module is mandatory for all employees and business-critical contractors.

Roche's suppliers and service providers are expected to adhere to the same standards as our employees. Our Roche Supplier Code of Conduct\*\* is included in contracts and we offer an e-Learning programme to help our suppliers and service providers increase their knowledge and understanding of Roche's expectations and of industry standards.

We also operate a stringent process to qualify and audit current and new suppliers and service providers. In 2015, we conducted more than 1,000 audits of global and local suppliers and service providers. The main findings at suppliers related to quality, health and safety, whilst findings at service providers occurred primarily in quality, social and managerial areas. We helped our suppliers follow up on the findings.\*\*\*

*The Roche Group Code of Conduct is available in 30 different languages.*

### Suppliers and service providers: findings in sustainability audits by category (%)

	2015
Ethics	<10%
Labour	10–25%
Health and safety	10–25%
Environment	10–25%
Managementsystems	25–50%

Of all the audits conducted, the ranges provided indicate the percentage of findings in each category. Roche helps its suppliers follow up on these findings.

### Speaking up is the right thing to do

Our primary goal is to create an environment of mutual trust where issues can be discussed in open dialogue and potential violations can be prevented. Employees are encouraged to speak up when they have a compliance concern by using available SpeakUp channels. In 2015, 125 employees used the Roche Group SpeakUp Line, which is available in 53 languages in 101 countries. Any employee who raises a compliance concern in good faith acts in the interest of Roche and deserves acknowledgement. Roche does not tolerate any retaliation against an employee who raises a compliance concern in good faith.

In 2015, the Chief Compliance Officer received 804 reports relating to alleged violations of the Code of Conduct via the Business Ethics Incident Reporting system. The vast majority of the reports related to personal integrity cases, such as expense fraud, conflict of interest, abuse of company assets, harassment and discrimination. The remainder related to violations of company integrity, such as good practice in marketing, antitrust and false records. Out of 804 allegations 287 were unfounded, 162 are still under investigation, and 355 were founded. All allegations are subject to careful investigation, and, if allegations are founded, adequate corrective measures and sanctions are taken.

148 employment contracts were terminated on the grounds of unethical behaviour. 18 agreements with business partners were also terminated for the same reason.

### Managing opportunities and risks

Our Risk Management Policy sets out our approach to identifying, managing and reporting internal and external risks and opportunities.<sup>†</sup> This Group Risk Management Process is embedded at all levels of the organisation using consistent methodologies and processes to routinely perform risk assessments. A Group Risk Report, which covers all material risks, is annually discussed with the Corporate Executive Committee and reviewed by the Audit Committee of the Board of Directors.

The Group Risk Advisory team provides advisory services to sites, affiliates, project and product teams, and facilitates risk discussions to support the business in many specialist areas such as digital media, IT security, compliance and sustainability. e-Learning programmes, classroom training, workshops, risk roundtables and cross-divisional risk forums are in place to improve the understanding of risks and help employees to manage them appropriately.

We continue to strengthen our business continuity management (BCM) to ensure that our sites and affiliates respond effectively to catastrophic events, and develop strategies and tactics to deliver a minimum acceptable level of key products and services. The Group BCM Policy and Guideline facilitates a consistent and aligned approach to local implementation.

Preparing for an influenza pandemic is covered under our Group Influenza Pandemic Policy, which is based on the most recent WHO Interim Guidance. All sites are required to have an updated influenza pandemic plan in place that has been properly tested.

*The Group Risk Report is annually discussed with executive management.*

### Assessing sustainability risks and opportunities

We have established a Business Sustainability Risk Process, which allows us to assess emerging risks and developments on an annual basis and to integrate these into our existing Group Risk Management Process. Each year, emerging sustainability risks and developments are identified and assessed by an expert cross-functional team. In 2015, new categories were identified which consider and include, where appropriate, our previous year's emerging risks and developments:

- Digital evolution: companies are becoming more and more dependent on cutting-edge information technology and digital data, hence raising the question of data integrity and data confidentiality. Cyber threats and cloud security are also considered.
- Innovation: the constant evolution of life sciences and technologies requires companies to adapt their innovation strategy in order to constantly embrace scientific progress and business opportunities.
- Corporate evolution: global corporations are exposed to growing complexity of their business environment, including an increasing number of third-party relationships and partnerships.
- Government and society: companies now have to include multiple stakeholders in their decision-making process, including governments, non-governmental organisations and other citizen groups.
- Demographic evolution: companies are challenged to re-think and adapt their operating model to fit societal expectations and needs (e.g. flexible workplace).

\* [www.roche.com/code\\_of\\_conduct](http://www.roche.com/code_of_conduct) | \*\* [www.roche.com/roche\\_supplier\\_code\\_of\\_conduct.pdf](http://www.roche.com/roche_supplier_code_of_conduct.pdf) | \*\*\* [www.roche.com/suppliers](http://www.roche.com/suppliers) |  
† [www.roche.com/risk\\_management\\_and\\_compliance](http://www.roche.com/risk_management_and_compliance)



### **Working with governments to improve public health**

We are actively engaging with government officials and industry bodies in order to contribute to the public debate and to the development of effective public health laws, regulations and policies. In 2015, key areas for discussion and engagement were:

- In the EU: Data Protection Regulation, *in vitro* diagnostics regulation, access to innovative medicines.
- In the US: biosimilars, payment reform, patient access to healthcare.

Roche remains independent of any political affiliation; however, we do support a number of associations and political institutions. In Switzerland, we spent around CHF 9.3 million in 2015, which includes payments to industry associations and various chambers of commerce, financial assistance to trade unions, and donations to political parties at the cantonal and federal level. Donations to political parties are each in the low-double-digit thousand Swiss franc range and overall less than 3% of total contributions and donations.

Our eligible employees in the US can make personal political contributions through Roche's Good Government Committee (GGC) and Genentech's Political Action Committee (GenenPAC). Both are voluntary political action committees. In 2015, the GGC and GenenPAC jointly contributed approximately USD 300,000 to candidates and candidate committees.

### **Increasing transparency**

We are committed to transparent reporting and we endeavour to drive our social and environmental performance with the same diligence as our financial performance. This is why we follow the Global Reporting Initiative G4 guidelines, which we disclose at the core application level. We also report a number of additional indicators.\*

Patient organisations are important partners for Roche. Throughout our interactions, we are committed to ensuring that all collaborations reflect the shared values of integrity, maintenance of independence, respect and mutual benefit. Our support of a patient organisation is always based on a written agreement, which clearly states the purpose and amount of any financial support, and includes a description of any significant indirect or non-financial benefits.

In accordance with industry guidelines, we make public details of our relationships with patient organisations. This list is updated annually and published on our website.\*\*

#### **Contributions to patient organisations**

Total amount CHF 30 million

	2015
Research projects	7%
Workshops, seminars and meetings	13%
Educational grants	17%
Service contracted with patient organisations	3%
Disease awareness and general education	60%

The future brings new challenges and opportunities based on the development of disruptive information technologies.

We separated our commercial and medical organisations in both the Pharmaceuticals and Diagnostics Divisions, differentiating clearly between non-promotional activities of medical or scientific intent and promotional activities. In addition to this separation, we have established a Pharma Healthcare Compliance Office to effectively support line management in their compliance responsibilities.

Roche is dedicated to engaging in productive and transparent dialogue and collaboration with healthcare professionals and healthcare organisations, and we are committed to satisfying legitimate requests for information about the results of research and development activities in a transparent, accurate and timely way.

Throughout 2015, new divisional guidance was implemented regarding interactions with healthcare professionals and organisations, including grants, sponsorships and donations to healthcare-related entities. Training and information sessions have been organised to train employees across the Group on this new guidance.

We are transparent about our contributions to healthcare professionals and organisations, and we are committed to full compliance with all laws, regulations and industry codes requiring disclosure (e.g. US Sunshine Act, EFPIA Disclosure Code).

We also publish data voluntarily on a global level as part of our sustainability reporting.

#### **Contributions to healthcare institutions**

Total amount CHF 124 million

	2015
Education of healthcare professionals	53%
Research	39%
Education of patients and general public	8%

#### **Disclosing clinical information benefiting society**

Roche is committed to sharing data from clinical trials, and we have taken significant steps in recent years to enhance how we share our clinical study information:

- By publishing protocol and study results information on clinical trial registries\*\*\*
- By disclosing appropriate clinical study documentation such as Clinical Study Reports (CSRs)
- Through peer-reviewed publications and presentations
- By providing qualified researchers with access to patient-level clinical trial data†

In all cases, disclosures are made so as to safeguard patient privacy. We collaborate with a number of groups involved in advancing opportunities for data sharing. These engagements include partnerships established through clinicalstudydatarequest.com and TransCelerate.

\* [www.roche.com/non-financial-reporting](http://www.roche.com/non-financial-reporting) | \*\* [www.roche.com/patient-groups-list](http://www.roche.com/patient-groups-list) | \*\*\* [www.clinicaltrials.gov](http://www.clinicaltrials.gov), <https://eudract.ema.europa.eu> |

† [www.clinicalstudydatarequest.com](http://www.clinicalstudydatarequest.com)



*“Compliance is more than a policy—it’s a mindset.”*

*Ameya Telang, Finance Director and Compliance Officer, Roche Philippines*

## **Integrity: a basis for our business**

I can truly say that I grew up with Roche. My father worked for this company for more than 35 years. I was always impressed with Roche's values.

Today, I still believe firmly in Roche's values in my work at Roche Philippines. As Finance Director, I am responsible for meeting our objectives. As Compliance Officer, it is my job to ensure that we sell our products in an ethical manner. We rely on the science and clinical data behind our products to convince decision-makers about their value.

The pharmaceutical industry is highly regulated. Roche goes beyond those regulations to ensure that employees are compliant with high ethical standards. In the area of healthcare, compliance standards

govern our interactions with doctors, hospital administrators, patients and many other stakeholders.

When I took on this job in 2014, there was a need to deepen understanding of compliance. Healthcare regulations and our own internal guidelines are evolving rapidly. Sometimes, questions and ambiguities arise. Our people needed information resources that were close at hand.

That's why we established the Compliance Champions in the Philippines. Since every function across Pharmaceuticals, Diagnostics and Diabetes Care has a Compliance Champion as a contact person, it is much easier for colleagues to consult them.

That was a catalyst for change in our organisation. Employees no longer looked at compliance as a separate function, but as a part of their daily work. The internal expertise helped us to illuminate grey areas and become more proactive in addressing potential issues. And if

*Personal perspective*

*“It’s about asking yourself, before making a decision, if you are doing the right thing.”*

we need additional clarification or help, we can always call on compliance resources at the regional or global level.

For me, compliance is more than a policy—it's a mindset. It's about asking yourself before making a decision whether it is the right thing to do. That mindset is now part of our organisation. Since launching the Compliance Champions initiative, we are evolving in our compliance journey by creating an environment where we spend much less time evaluating potential compliance issues.

We also see the impact with external stakeholders. If a doctor asks whether his spouse or partner can attend a Roche event, for example, we politely decline and explain the why in terms of our integrity standards. This strengthens our position as a reputable company.

I believe strongly in what we do for patients at Roche. In my job, I don't have a direct influence on discovering or developing new drugs. But if I can contribute to making our business more sustainable, I have done something that matters.



*“I work with Compliance Champions from every function to embed proactive thinking in our daily work.”*

## Putting patient safety first

### *Continuously improving safety standards*

Ensuring patient safety and the effectiveness of our products is our top priority. We collaborate with regulatory agencies, monitor reports of adverse events experienced by patients, and communicate on our product safety activities.

Our products have well-characterised benefit-risk profiles which are updated throughout the life of the product. Adverse events are stored in a global database, reviewed by a qualified physician, and reported promptly to the appropriate regulatory authorities, as required. In addition to communicating openly with regulators and other stakeholders, we require all employees to immediately report any drug safety or quality issue to the respective safety personnel. All employees have to complete a mandatory programme every year to ensure full awareness about adverse event reporting.

When our medicines leave our manufacturing process, they must meet high-quality standards. Roche's Pharmaceutical Quality Systems and Processes comply with ICH\* guidelines which are developed through a process of scientific consensus with regulatory and industry experts working side by side. Our quality management system is inspected annually by all relevant health authorities worldwide as well as by

*We require employees to immediately report any drug safety or quality issue.*

Roche internal quality and compliance audits on a regular basis, ensuring compliance with good manufacturing practice standards. In 2015, approximately 50 inspections were conducted by health authorities at Roche manufacturing sites. We focus on proactive corrective and preventive actions to address non-conformities, and on determining their causes to ensure sustainability of operations.

Our quality system is instrumental in maintaining our right to operate, and in overall successful health authority inspections and health authority interactions. This system also enables the timely approval of new products and corresponding successful pre-approval inspections.

Roche's Pharma Technical Operations Unit, which is tasked with ensuring the availability of Roche medicines worldwide, maintains a quality plan which is foundational across all operations. The quality manual highlights key actions to continually improve our overall quality and compliance standing in accordance with ICH guidelines. It is routinely shared with Roche's senior management and discussed with global health authorities.

#### Fighting counterfeiting globally

The manufacturing and distribution of counterfeit medicines and diagnostic products are criminal activities and threaten the safety of patients. Roche collaborates with governments, healthcare professionals, regulatory authorities, police, customs services and its

own distribution channels to combat the counterfeiting market and strengthen legislation.

The Council of Europe drafted a convention which constitutes, for the first time, a binding international instrument in the criminal law field on counterfeiting of medical products and similar crimes involving threats to public health (MEDICRIME Convention). The convention came into effect in January 2016.

In 2010, we initiated a programme at Roche to increase security in our supply chain. We are implementing a number of new technologies, including overt and covert anti-counterfeiting features, 2D barcoding, mass serialisation techniques and tamper-evident packaging. On completion of the programme, slated for 2018, every Roche product, folding box, case and pallet will have a unique identification.\*\*

#### Defining regulatory frameworks for biosimilars

In order to ensure the safety of patients, the development and manufacture of biosimilar monoclonal antibodies must be subject to rigorous clinical and regulatory standards, as well as post-marketing pharmacovigilance protections.

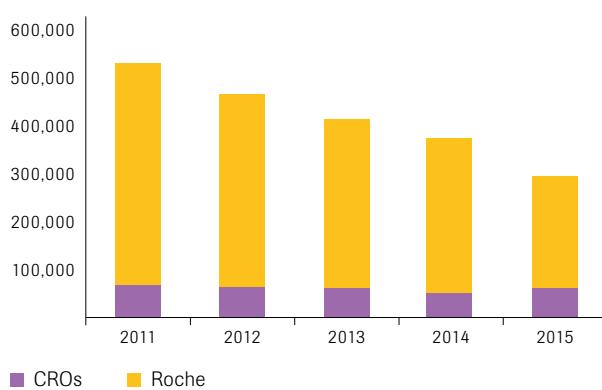
Roche supports the development of regulatory frameworks for the introduction of biosimilars, and is actively engaged in the stakeholder dialogue. Such frameworks help to ensure a consistent and high level of public health protection with respect to biosimilars, whilst protecting the innovation of the originator product. We also firmly believe that regulations relating to biosimilars should not impede, but rather promote and incentivise innovative research towards novel medicines.

#### Reducing animal testing to a minimum

Like all research-based healthcare companies, Roche conducts animal tests as required by regulatory authorities. If, however, the same test results can be achieved using scientifically acceptable alternatives to animal testing, we will always use these. We invest significantly in the development of testing methods using computer simulation or isolated cells grown in a petri dish. In Switzerland, we support the 3R Research Foundation which funds the development or improvement of methods based on the 3R strategy (Replace, Reduce, Refine).

In 2015, we used 239,539 animals in our internal research. The number of animals used by contract research organisations (CROs) working on Roche's behalf increased to 60,619. Approximately 97% of the animals used were mice and rats. All major sites were awarded continued full re-accreditation status by the Association for Assessment and Accreditation of Laboratory Animal Care International, underscoring our commitment to ensuring animal welfare.

**In 2015, the total number of animals used in research (Roche and CROs) decreased by 21% vs. 2014**



\* The International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use. | \*\* www.roche.com/anti-counterfeiting

# People

*Roche is committed to cultivating a more diverse talent pipeline across generations, geographies and functional areas of expertise. It's a pillar of what makes Roche a great place to work and an award-winning employer year after year.*

1 in 5

*key senior positions*

*are led by people with both established and developing region experience*

**B**eing a science and innovation-driven company, what really distinguishes Roche is our people. We are committed to providing the best possible working environment so they can thrive.

At Roche we start from a foundation of respect; we passionately believe that a company can perform to the highest level while maintaining a caring, respectful working culture. Taking a genuine interest in people is a fundamental part of that—if we get that right, everything else falls into place.

We continue to focus on fostering a strong and inclusive leadership culture and on building a more diverse talent pipeline to help our people and our company excel in an ever-changing business environment.

Roche has consistently been recognised as one of the best companies to work for. Some of the honours awarded to Roche in 2015 include placement on several 'Great Place to Work' lists, including the Fortune 100 best companies list, Working Mother magazine's 100 best companies list, and DiversityInc's 25 most noteworthy companies in 2015.

*In 2015, we provided global development programmes for about 3,500 leaders across the Roche Group.*

#### Cultivating a more diverse talent pipeline

Diversity and inclusion are vital to foster innovation by encouraging different perspectives, ideas and thinking styles. Our business is different across our divisions and the world, so we need people who understand those differences. An inclusive culture also helps to encourage, accept and leverage diversity and helps ensure we do not lose access to internal and external talent.

In 2015, we defined what diversity and inclusion means to us\* and formalised the Diversity & Inclusion Practitioners' Network to ensure that leaders are aligned in the way we bring this commitment to life in the workplace.

#### Developing our future leaders

We introduced country-specific employee value propositions to reflect the most important priorities of employees in each site across the world. We are reflecting diversity throughout all aspects of our business; for example on the observer panels of our high-potential programmes, to ensure there is diversity among those assessing our future leaders.

To address current and future business challenges, we need inspirational leadership across all aspects of diversity, including generations, genders, geographies and functional areas of expertise.

\* Diversity refers to a wide range of visible and invisible differences that exist among people. Inclusion refers to proactive behaviours that create an environment in which all people are actively included.

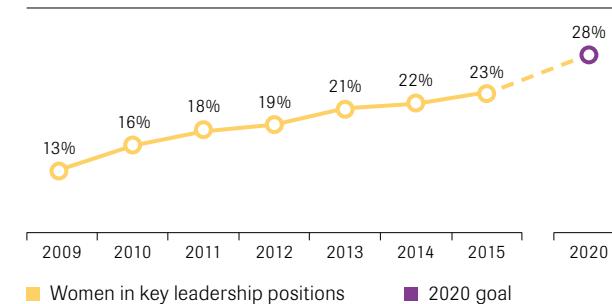


## Taking a genuine interest in people Committed to strong leadership

We are committed to increasing the representation of key leaders with established and developing region experience and providing opportunities for our employees to work in different environments. We are also committed to increasing the representation of women in key leadership positions. In 2015, we made progress on this goal, with women now accounting for at least 23% of leaders in key leadership positions and, for 40% of management overall.

We have also set targets for our talent scouts to build external pipelines to increase the representation of women and people with established and developing region experience (see page 112 for more details).

### Women in key leadership positions



We want leaders to understand all aspects of our key markets; not just business, but compliance, governance, people and culture, too. Our experience suggests that it takes at least a year of living and working within a country before starting to understand its culture.

We facilitate international assignments to allow employees to gain that essential experience. Over 1,100 Roche employees were on international assignment in 2015. In total, 40% of these assignments are to or from developing regions.

### Diversity in Pharmaceuticals and Diagnostics

In the Pharmaceuticals Division, we instigated the Leadership Acceleration Programme, a new initiative designed to advance talent for specific developing regions and ensure that our multi-year diversity and inclusion plans are being led by business sponsors across the organisation.

In the Diagnostics Division, a sponsorship programme for women has been running successfully for three years and has now expanded to include high-potential people\* with developing region experience. In this initiative, members of our senior leadership team sponsor top talent.

Everyone at Roche deserves a great leader. A strong leadership culture is critical to nurturing an engaging work environment where people want to come to work and stay longterm.\*\*

### Fostering a strong leadership culture

In 2015, we continued to embed our Leadership Commitments within our recruitment, selection, 360° feedback and performance management. We also continued skill-building programmes for core competencies, enhanced leadership skills and

## Our Leadership Commitments

1. I take a genuine interest in people.
2. I listen carefully, tell the truth, and explain 'the why.'
3. I empower and trust people to make decisions.
4. I discover and develop the potential in people.
5. I strive for excellence and extraordinary results.
6. I set priorities and simplify work.
7. I congratulate people for a job well done.

*I firmly believe that each person at Roche deserves a great leader. Every day I strive to lead by example, consistently demonstrating our values of Integrity, Courage and Passion.*

accelerated movement of talent, particularly in and out of developing regions.

About 3,500 leaders attended global leadership development programmes, which include initiatives such as Leading Leaders@Roche and Leading People@Roche. In addition, over 4,000 leaders received 360° feedback in their reviews (and over 52,000 employees have provided 360° feedback for leaders since 2013).

Nearly 90% of Leading@Roche participants reported positive change after six months, stating that their daily working practice is more closely aligned with the Leadership Commitments. What's more important, over 80% of participants' managers observed increased leadership skills after six months, particularly increased self-awareness and leadership rather than management behaviour.

### Leading in a changing world

Successful leaders know they must get out of their comfort zone to keep progressing. In 2015, we launched a new leadership initiative, which focuses on building that skill set. NJIA—which means 'path'

in Kiswahili—is a programme for Roche leaders and Tanzanian healthcare sector leaders that combines leadership development with social impact (see photo on page 107).

After significant briefings on market access, compliance and leadership, a group of approximately 25 Roche leaders travelled to Tanzania to work in partnership with local NGOs to address real healthcare challenges in the country, such as improving cervical cancer outcomes. Compared to women in Switzerland, women in Tanzania are about 26 times more likely to die of cervical cancer, a disease largely preventable through early detection.<sup>1</sup>

Our leaders found the experience to be hugely impactful, both in terms of growing their leadership skills, but also the team's ability to identify practical solutions to address the challenges. To ensure long-term sustainability of the programme and local impact, participants continue to support our project partners remotely before handing over to the next group of Roche leaders.

\* Employees identified as potential leaders. | \*\* [www.roche.com/materiality](http://www.roche.com/materiality) | 1 World Health Review: [www.worldlifeexpectancy.com/world-health-review/switzerland-vs-tanzania](http://www.worldlifeexpectancy.com/world-health-review/switzerland-vs-tanzania)

*“We need diverse experiences and ways of thinking to be successful.”*

*Stella Xu, PhD, Site Head, Roche Innovation Center Shanghai*

## A leadership role with impact

My role at Roche bridges East and West, science and management. I am from Changsha, the capital of Hunan Province. I became interested in science at an early age and studied biophysics in Beijing. Then I received a full scholarship for a PhD in molecular biology and immunology in the US. I remember boarding the plane with two suitcases and only 80 dollars in my pocket.

After finishing my degree, I worked as a drug discovery scientist in the US. Then I became a strategic consultant and joined Roche as a manager in 2002. I returned to China in 2008 to establish the Roche Partnering Shanghai office, and joined pRED in 2012 as Site Head for the Roche Innovation Center Shanghai. After nearly 20 years abroad, it took some



time for me to re-acclimate. Even the Chinese language had changed with the internet age. Shanghai is now a high-energy, cosmopolitan city, with a mix of many cultures. We reflect that diversity at our Roche Innovation Center.

I am convinced that a purely American, Swiss or Chinese way won't produce the best results in the immensely complex task of drug development. Beyond gender, ethnicity and nationality, we need diverse experiences and ways of thinking to be successful. My background helps me work across cultures and functions. In China, employees are often reluctant to speak up at meetings and accustomed to having decisions made for them. I practice inclusive behaviour by creating a safe environment where there are no bad questions. And I encourage people to take an active role in finding solutions. I lead a team of over 150 researchers. Being a scientist gives me credibility, but I cannot be an expert on every subject. I try to keep the big picture in mind, ask the right questions and support the teams to perform their best.

*Personal perspective*

*“Our people are happier, more engaged in their work, and our productivity has increased significantly.”*

When I arrived in 2012, my primary task was to integrate our previously independent research into the Roche global organisation. Our R&D efforts in Shanghai focus on infectious diseases, especially the hepatitis B virus. The integration aligned our strategy and broadened our pipeline and talents. We now have more structured performance management and career development processes built on customised plans. A wide range of trainings help our people grow professionally and we offer job rotations to other countries.

As a result of these and other initiatives, employee engagement scores in our internal survey, known as GEOS, jumped from 36% in 2011 to 82% in 2014. Our people are happier, more engaged in their work, and our productivity has increased significantly. As a leader, it is very motivating to have that kind of impact.



*“For me, communication is key. I often join team members for lunch and listen to their concerns.”*

## Preparing the workplace of the future

### Evolving to meet ever-changing needs

We fully support the fact that many people's aspirations change or evolve at different stages in their life and career and that the business environment changes as well. Taking into account contract-related changes, over half (57%) of employees were supported in a job-related change in 2015.

We also provide opportunities for employees to experience a different role within the company for up to three months. It is purposely a non-formalised arrangement with no conditions of entry, allowing employees to gauge their interest in other spaces of the business.

#### **Preparing now for the workplace of the future**

Over the next ten years, as many as 75% of our employees will be 'Millennials'; people who today are in their early 20s to mid-30s. For the first time, we will also have up to five generations in the workforce, with similar and sometimes different needs. Understanding

the needs of our whole workforce is essential to ensure that all individuals feel valued and respected and that teams feel the benefits of this vast range of perspectives and experiences.

Workplace 2020 is an often-used phrase, but the truth is that the future workplace is already here—we cannot wait until 2020. We are implementing change now, offering a wide range of attractive benefits for all generations, including a flexible work environment in many countries and state-of-the-art technology in our business areas.

The focus is to reflect the increasing mobility of our staff in providing access to the Roche work environment from anywhere, anytime and with any device. This builds on our Common HR Information Solution (CHRIS), which connects all employees, line managers and HR professionals within Roche and offers a broad set of self-services.

## People: five-year goals

December 2014 baseline

### 30%

increase in the representation of women in key leadership roles

### 30%

increase in the representation of people with established and developing region experience in key leadership roles

### Top quartile

ranking in overall employee engagement score, measured by the Global Employee Opinion Survey

#### **Attracting and retaining the best talent**

Every ten minutes we hire one candidate based on 67 applications in the Roche Group.\* Candidates say they are attracted by our excellent reputation as a great place to work which is driven by our unique culture, our strong purpose, our success, excellence in science and employment benefits, as well as our global development opportunities.\*\*

A key focus as we prepare for the workplace of the future is finding talent early in their career. From apprenticeship schemes to graduate trainee programmes, we launched several new initiatives to help recruit and identify those with great potential at an early stage in their development. In the coming years, we will focus more extensively on attracting and developing these talents.

We have a proactive in-house approach to recruitment with a globally aligned group of internal talent scouts who are fully committed to Roche, focusing on building external pipelines to meet future needs, covering gaps in prioritised succession planning roles and supporting difficult-to-hire current roles. This approach has significantly contributed to reducing the dependency on external recruitment agencies.

A continuous key target for Roche is to further improve the entire candidate experience. We are undertaking significant improvements to increase the ease of application, and we are reviewing the entire candidate experience pre- and post-application to ensure all candidates find the process straightforward, respectful and welcoming.

#### **Rewarding and recognising our employees**

We try to strike a balance between a highly competitive base salary and performance-linked rewards. There are also numerous benefits for employees that vary

*Over half of employees were supported in a job-related change in 2015.*

from site to site. These may include discounts on buying Roche non-voting equity securities, pension schemes, health insurance, childcare, on-site fitness, medical facilities, flu vaccinations, preventative health screenings, discounts with local retailers and transportation to the workplace.

Our flexible benefit programmes can often be tailored to individuals' own needs. For example, some sites have implemented a flexible benefit programme where employees can prioritise certain rewards, such as pension or a company car, over others.

We are now in the second year of the 'Applause' programme, an online tool with which employees can recognise each other directly, through e-cards or reward point nominations. Overall usage was up by over 10% in 2015, with about 223,000 peer-to-peer recognitions among our employees.

#### **Easy access to individual benefits**

In 2015, we also expanded the availability of the TotalReward Statement, an online self-service allowing employees to see a full overview of all their compensation and benefits. This is a unique online resource, packaging our employees' individual tailored benefits together.

This service is available for a total of 49,800 employees in Switzerland, Germany and the US, with China about to go live and several other countries to follow in 2016 through a self-service solution. So far it has a 70% view rate among employees.

# Environment and Community

Our aim is to minimise our ecological footprint and to increase the use of renewable resources whilst continuing to expand our global business. We also seek to support local communities through long-lasting partnerships.

15%  
sustainable energy

on track with our 2020 goal of 20% sustainable energy consumption

# We continued to improve our environmental performance, with significant progress in improving our energy efficiency.

Safety, Security, Health and Environmental Protection (SHE) forms a central part of our operations and is an important component of sustainability.\* We approach it with the same commitment as any business-related activity, striving for continuous improvement wherever possible. We monitor our performance\*\* regularly to ensure compliance with our high standards and objectives, and ensure that our processes and equipment are state-of-the-art. Importantly, we devote special attention to prevention, which is key to effective SHE management. In 2015, several Roche sites invested in a state-of-the-art and energy-efficient infrastructure. These investments allow us to reduce our environmental footprint and reduce costs.

## Improving and monitoring our performance

As a company with global production operations, Roche is exposed to risks that could possibly damage people, goods, the environment or our reputation. Audits, consulting, training on environmental protection and occupational health and safety, as well as professional risk management, minimise these risks. In Safety, Health and Environmental protection we employ 651 people worldwide and 491 people in Security. Expert teams at each Roche site identify risks and develop mitigation plans. They communicate policy and guidelines to employees and other stakeholders and motivate them to implement the necessary measures. The effectiveness of our SHE management system is reviewed frequently, with employees encouraged to

identify areas for improvement and recommend changes. Using a database of SHE best practices, our employees frequently share knowledge and exchange new ideas. We conduct regular training sessions, regional conferences and workshops and provide online tools in local languages to help employees foster engagement and responsibility. In 2015, about 79,000 employees participated in approximately 227,000 hours of SHE training, an average of 2.87 hours per employee.

## Ensuring compliance and fostering improvements

Our policy is to audit our chemical, pharmaceutical and diagnostic manufacturing facilities periodically with increasing frequency according to existing risks. Within Roche, Group SHE performed 33 audits in 2015. These audits assess SHE performance against legal compliance and internal standards and stipulate future improvements. Plant management and local SHE officers conduct more frequent checks and inspections to assess compliance with SHE standards. We expect contract manufacturers, suppliers and service providers to meet the same standards as we do. To ensure compliance, we or third-party auditors managed by us inspect the operations of our suppliers and make recommendations for improvement. In the event of non-compliance, we may either terminate a contract, refuse to renew it, or ask for improvements, which we sometimes actively support.

\* [www.roche.com/environment](http://www.roche.com/environment) | \*\* We measure our performance based on a set of key performance indicators (KPIs) and aim to reach at least 95% of each KPI. [www.roche.com/our\\_she\\_goals\\_and\\_performance](http://www.roche.com/our_she_goals_and_performance)



## SHE: Five-year goals

based on 2015 figures

**-10%**

Eco-balance\*

**-15%**

Energy consumption\*\*

**-10%**

Water consumption

**-10%**

General waste

\* 2014–2019 | \*\* 2015–2025

In addition to spending CHF 296.3 million for environmental purposes, our investments and operating cost for safety and security totalled CHF 321.4 million.

### Managing material SHE topics

We are constantly aware of material SHE issues. We regularly gather information concerning SHE-related risks and opportunities from Roche affiliates as well as consult with and listen to our stakeholder groups. We also match the stakeholder issues with our internal strategic priorities and risks framework to produce our materiality matrix. We have thus been able to identify material topics which stand out as areas of interest to Group SHE and its stakeholders. Such topics are actively managed by Group SHE and include, but are not limited to climate change, energy and resources, occupational and mental health and water. Roche considers these and other material issues in order to strengthen its environmental strategy. By knowing our material issues and what goals we want to achieve, we have been able to develop a clear and defined process to create progress through target-setting and initiating action plans. Mid-term targets have been set for 2015–2020. The new goals are feasible but challenging in the areas of people, environment and business. They also reflect several of the 17 Sustainable Development Goals adopted by the United Nations (see page 94 for more details).

### Occupational health and safety

Safety is one of our top priorities. We believe that no job is so urgent or routine that it cannot be done safely. Our primary objective is to keep the Roche Accident Rate (RAR), the number of working days lost due to occupational accidents per employee per year, and the Lost Time Accident Rate (LTAR), the number of accidents which caused absence from work per 200,000 worked hours, as low as possible. We are continually improving our occupational health and safety measures. We have set feasible but ambitious goals and have established health and safety committees at virtually all Roche sites engaged in technical activities and at many other sites according to risk levels.

Our ten-year goal is to keep the RAR <0.06 and the LTAR <0.5 by 2020. In 2015, we introduced a new goal to reduce the number of vehicle collisions per million kilometres by 10% over the next five years. In 2015, we reached our five-year objective of keeping the RAR <0.07 and the LTAR <0.6. As our accident rate is now so low, a single accident, resulting in a longer absence, can lead to fluctuations in the RAR key figure. Our occupational accident profile remains consistent with slips, trips, falls and repetitive strains representing the majority of work-related incidents in 2015.

Prevention of overexposure to substances is a cornerstone of the protection of the health of Roche's

employees and others who handle our substances. To define the necessary measures, we need to know the potency/toxicity of each substance and the level of exposure caused by each operation. Over the years, Roche has assessed and established levels of acceptable exposure for 1,500 substances. Exposure levels are determined systematically to ensure that they do not exceed the established standards. Protection from overexposure must be ensured by engineering controls. New processes are designed to fulfil this criterion, and existing ones have been modified to a very large extent to meet the most current standards of containment.

### Fire and process safety

The already well-established fire safety surveys performed in the US have been extended, and additional sites have been surveyed. These surveys are carried out by members of the insurance group, SHE, and a professional third-party fire engineer. The implementation of the recommendations is followed up through the SHE auditing system. New projects requiring fire protection installations benefit from the professional fire engineering know-how available. Roche has established a Process Safety network for its chemical production sites, which meets regularly to work through common issues of concern, share best practice and recommend improvements. A similar network for the pharmaceutical solids formulation sites has been initiated, and a powder handling workshop for the Solids Formulation Managers and SHE officers has been held. A Process Safety Management Directive has been developed and issued.

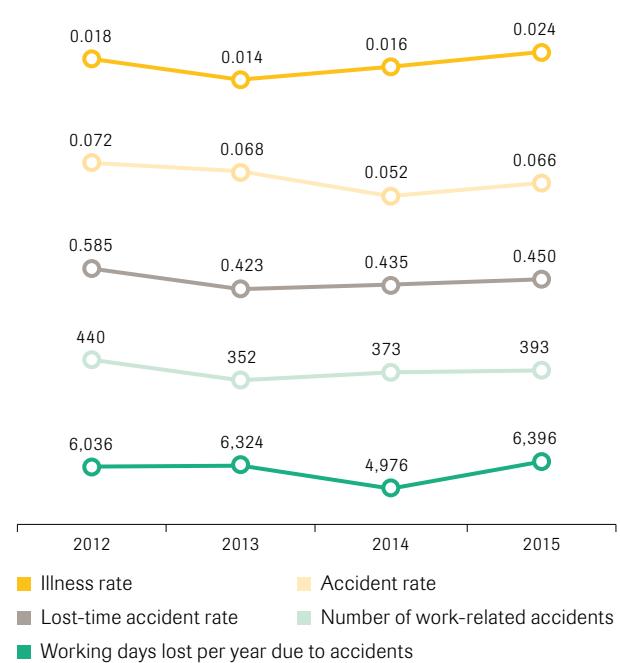
### Security

Protecting our employees, physical assets, critical information and the integrity of our brands and products are principal concerns of Roche. Preventative measures are a priority in all aspects of security. One focus in 2015 was the implementation of a Global

Travel Tracking tool to identify and assist Roche business travellers in case of an emergency during their trip. The new tool will be operational from 2016.

A second security focus in 2015 was set by the Asia/Africa Security Workshop held in Shanghai. Site security officers from all Asian sites and from selected African affiliates discussed challenges and good practice on three key topics for the regions: prevention of and response to counterfeiting of our products, information security including risks to our intellectual property and measures to protect it, and training in adequate security measures for small affiliates. A new Group directive was also issued to give guidance on conducting security investigations related to confirmed criminal activities against Roche products—counterfeiting, diversion and theft.

### Employee health and safety



## Conducting operations in a sustainable way

### *Leveraging modern technologies*

Research and pharmaceutical and diagnostic manufacturing are dependent on natural resources, which are becoming increasingly scarce. As part of our commitment toward sustainable development, we proactively seek to employ new, more sustainable technologies and processes and to minimise our impact on the environment. The less Roche depends on non-renewable resources, the less vulnerable it is to supply constraints and volatile market prices.

We are proud that our sustainable development achievements were recognised externally in 2015. The Dow Jones Sustainability Indices ranked Roche industry leader in the Environmental Category, with high marks for our climate strategy, environment policy, management, reporting and operational eco-efficiency. Our efforts were also noticed by Newsweek – ranking Roche the 9<sup>th</sup> greenest company in the world's 500 largest publicly-traded companies (by market capitalisation).

At a local level, the Latvian Sustainability Index 2015, organised by the Institute for Corporate Sustainability and Responsibility, gave Roche the Silver award. Roche Uruguay was also recognised in 2015 for its efforts in creating a sustainable working environment. It was awarded a Silver LEED Certification\* for sustainable design under the LEED Commercial Interiors Rating System. The focus was on its efficient use of water and energy and their use of LEED-certified, recycled and/or energy-efficient materials and equipment.

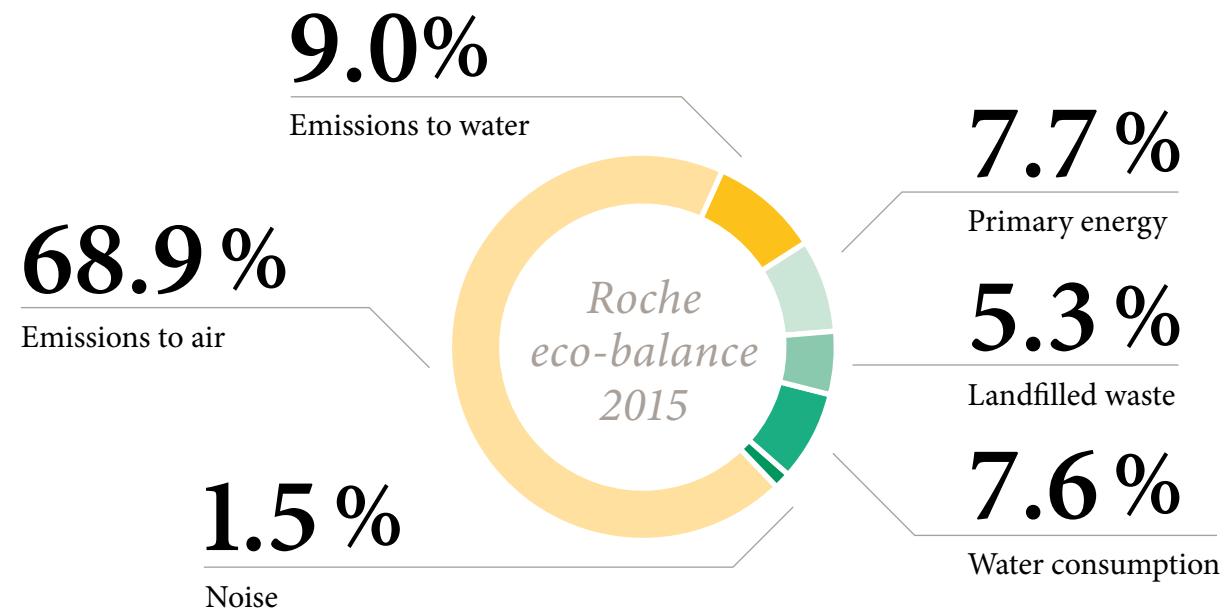
#### Competition triggers significant improvements

In line with our sustainability strategy, we give our internal stakeholders the opportunity to contribute ideas and suggestions for improving our sustainability culture and performance. This also raises awareness of environmental protection and encourages sustainability by identifying cost savings from environmental protection activities. ECOmpetition submissions have resulted in significant improvements in a variety of areas, including energy conservation, waste reduction, decreased consumption of water and raw materials, and reduced air pollution.

About 200 winning suggestions have generated monetary savings of more than CHF 5 million since the start of the programme in 1995. This estimation is based on the size of the initiatives and their year-on-year cost saving potential.

#### Improving energy efficiency

We set up energy-saving action plans across our sites. They include the implementation of innovative technologies and continuous upgrading of infrastructure to improve energy efficiency. We purchase energy-efficient equipment, including hybrid cars, and we review employee travel needs. We also change work processes, which is a complex task in highly regulated facilities. We are also working on a steady transition to using sustainable energy. Since 2010, a total of 1,063 projects have been completed and yield a reduction of approximately 127,000 tonnes of CO<sub>2</sub> emissions and an estimated cost saving of CHF 27.6 million per year.



#### Eco-balance: a holistic way to measure impact

From the consumption of energy and resources to emissions of by-products and waste from our business activities, we impact the environment in many different ways. We measure our total impact using the eco-balance metric, which is a point system allocated to ecologically relevant parameters. Developed by the Swiss Federal Office for the Environment, we are compliant with their latest guidelines.<sup>1</sup> This metric provides us with a global view of how we are impacting the Earth's eco-systems. These points are added up and then related to the total number of employees, which enables us to monitor our environmental impact per employee. Our strategic five-year goal is to reduce our eco-balance by 10% by 2019. This allows local site management the freedom to develop locally appropriate strategies and objectives for reducing their environmental impact.

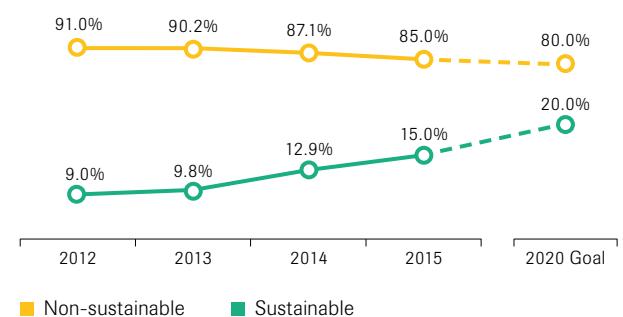
In 2015, our eco-balance comprised 68.9% of emissions to air, of which 83.6% was CO<sub>2</sub>. Compared to 2014, our total environmental impact per employee decreased by 3.6%.

Our efforts in optimising energy consumption and reducing the volume of consumed water, as well as

emissions to air, contributed to this positive effect, despite an increased number of employees.

Today, a large proportion of the energy used by Roche comes from fossil fuels: non-renewable and depleting sources such as oil and natural gas. As a result, we produce greenhouse gases (GHG), mainly CO<sub>2</sub>, and other waste products that contribute to climate change and air pollution. Our aim is to maximise efficient energy usage and to increase the use of sustainable energy whilst continuing to expand our global business.

#### Share of sustainable energy actual data and goal for 2020



\* LEED: Leadership in Energy and Environmental Design, one of the most popular green building certification programmes. | 1 Swiss Eco-Factors, Ecological Scarcity Method, 2013.

## Reducing our energy intensity

### *Replacing fossil by renewable energy*

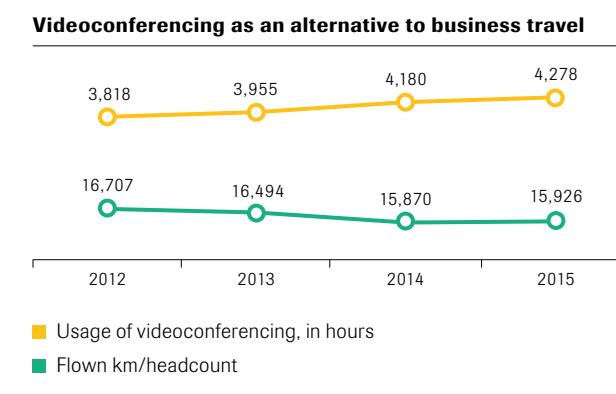
We have recently set a ten-year goal (2015–2025) to reduce energy intensity (gigajoule/employee) within our own facilities (scope 1) and purchased energy consumed by us (scope 2) by 15%. By about 2050, we expect to reduce energy consumption per employee by approximately 50%, compared to 2005 baseline levels. Additionally, we plan to increase the proportion of sustainable energy used to 20% by 2020. In absolute terms, energy consumption increased in 2015 by 4%. This was due to remediation activities at our Nutley site as well as an increased production and headcount. Sales grew 5%,\* thus decoupling energy consumption from the growth of business. Our energy-saving activities resulted in a 4.2% decrease in car fuel

Energy consumption terajoules					
	2015	2014	2013	2012	2011
Total (scope 1 and scope 2)	10,607	10,297	10,808	10,778	11,109
Energy (scope 1 and 2) consumption (GJ/employee)**	105	108	118	128	136
Scope 3					
Business flights	2,876	2,672	2,661	2,502	2,262
Energy-intensive utilities ***	277	-	-	-	-

\*\* Data collected by Group SHE.

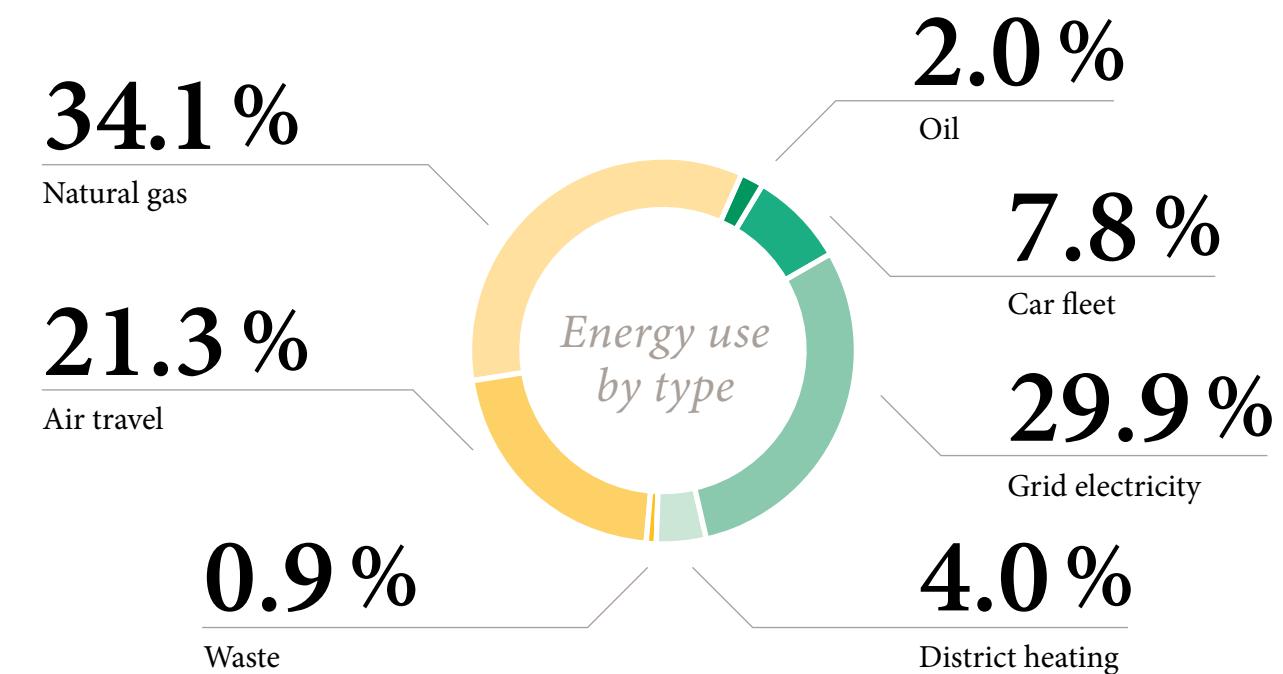
\*\*\* Compressed air and liquid nitrogen.

consumption and a 21.1% increase in sustainable energy use. In absolute terms, energy consumption from business flights slightly increased. However, the flown km per headcount remained stable. Thanks to increasing employee awareness, more and more video conferencing tools are being used, helping to stabilise business-related travel.



#### Natural capital

We are one of ten multinational companies currently conducting a detailed pilot test to inform the development of a new Natural Capital Protocol which aims to be an internationally agreed harmonised approach for businesses to systematically take into account the monetary value of their environmental impacts and dependencies within their decision-making and/or reporting. The pilot assessment has begun to explore our overall relationship with the environment along its value chain. In addition, it involves a more detailed



assessment and valuation of impacts and dependencies at the company's six operational sites in Switzerland. A key objective is to determine how the approach adds value in comparison to the existing methodology we use.

#### Sustainability—a key parameter

Within the framework of Roche's energy-efficient buildings, we focus on criteria such as 'highly functional' and 'highly sustainable,' as well as high-quality urban design and architecture. Roche brings together a vast array of practices, techniques and skills to keep energy consumption to a minimum. Measures which reduce operating energy (heating and power for equipment) are integrated throughout the conceptual phase and through to the finished structure. To reduce operating energy consumption, the buildings are designed so that air leakage through the building is reduced. This also includes high-performance windows and extra insulation in walls, ceilings and floors. In addition, effective window placement can provide more natural light and reduce the need for electric lighting during the day. This approach is applied for new facilities across our global

organisation, including new buildings inaugurated in 2015 in South San Francisco and in Basel.

Genentech's newest building in South San Francisco was designed to provide optimal working conditions, to operate on 29% less energy than the US standard for new office buildings, and to receive the LEED gold certification (see page 117). The project is a reflection of dual efforts by Genentech and energy efficiency experts at the nearby Lawrence Berkeley FLEXLAB Laboratory. FLEXLAB is a test bed that assesses and optimises building operation under real-world conditions, testing various configurations of walls, windows, lighting, shading, heating, ventilation and air conditioning.

In Basel, the new data centre opened in 2015 is expected to consume 25% less energy than average new European data centres. Roche Basel's newest building, a high-rise inaugurated in September 2015, is earthquake-resistant, highly functional and sustainable. The top-quality workspaces and flexible layout allow for approximately 2,000 employees.

\* All growth rates in this report are at constant exchange rates (average 2014).



*“Contributing to Building 1 was a once-in-a-lifetime opportunity.”*

*Markus Wöllner,  
Senior Technical Project Manager*

## A high standard for sustainability

During my 24 years as an engineer and project manager at Roche, I have taken on increasing levels of responsibility. Roche's new high-rise office building in Basel, Building 1—with a height of 178 metres and 41 floors—was the biggest challenge ever.

My team and I were responsible for all technical installations of the building and its automation.

In terms of mindset, it's sometimes helpful that I am a marathon runner, as this project lasted almost seven years from project initiation to inauguration. During the final phase, there were some tough stretches when we had to quicken the pace to meet our deadlines. All of us put in long hours and worked hard with colleagues to resolve problems. And we finished the project on time and on budget. The

inauguration ceremony was held on 18 September 2015. This was only possible with passion and teamwork. I am particularly proud of Building 1 in terms of its sustainability, and especially its energy efficiency, which was a top priority for our senior management.

The first pillar of sustainability is minimising energy use. We have installed 10,000 LED lights that are even 60% more efficient than high-efficiency fluorescent lamps. Our LEDs only need to be changed every 20 years on average. This significantly reduces operating expenses and waste. Another example of minimising energy use is the innovative façade of the building. Triple thermal panes combined with a closed cavity of air and integrated sunscreens reduce glare and help to insulate the interior from heat and cold.

The second pillar is using sustainable sources of energy. Building 1 is heated by waste heat generated by manufacturing on our site in Basel. Ground

*“It's a great feeling to look up at this building and know that I had a part in its realisation.”*

water, which remains at a constant temperature of 15 degrees Celsius is used to cool the building in summer.

The third pillar is energy-efficient operations. Sensors at each workstation detect when no one is present and turn off lights and ventilation automatically. There is a monitoring system for the whole building to track energy usage. Employees are encouraged to 'think green' in terms of reducing their environmental footprint.

In my profession, constructing something of this magnitude is a once-in-a-lifetime opportunity. And in view of our site development plans, I look forward to building on this great experience and taking on a role with even more responsibility in our new projects.



*“Not only are the 10,000 LED lights 60% more efficient than fluorescent lights, they also create a unique design element.”*

## Limiting our air emissions

### *Increased energy efficiency to reduce CO<sub>2</sub>*

As our business, and therefore production, continues to grow, we are committed to maintaining the low level of air emissions we have achieved to date. Our emissions strategy prescribes continuous improvement at our manufacturing sites. This includes using flue gas scrubbers to reduce nitrogen oxides and sulphur dioxide, and various incineration and freezing processes to reduce the release of volatile organic compounds (VOCs), which may also reduce energy use. Our emissions to air from VOCs decreased by 3.3%, and from nitrogen oxides by 10.2%, while particulates remained unchanged. Sulphur dioxide increased by 120%, mainly due to improved readings at our Ventana site. Emissions to air from our sites are at very low levels, which means that new processes or activities, as well as the timing of sampling, can result in fluctuations as seen in the past few years.

As the majority of our GHG emissions originate from the transformation and use of energy, our goal for improving energy efficiency also applies to GHG emissions; that is a 15% reduction in scope 1 and scope 2 GHGs per employee over a ten-year period. We do not favour the use of carbon offset (purchasing so-called CO<sub>2</sub> certificates to compensate for our emissions) as an alternative to driving our own efforts to reduce emissions. In 2015, 42.5% of our GHG emissions originated from within our own facilities (scope 1) and amounted to 384,421 tonnes. Scope 2 GHG emissions made up 35.0% of the total. Our combined scope 1 and 2 GHG emissions were cut by 5.0% in 2015. This reduction was achieved by implementing energy-saving measures and reducing the amount of fuel we use to heat, cool and operate our sites. The major contributors to this success were

#### CO<sub>2</sub>-equivalent emissions metric tonnes

	2015	2014	2013	2012	2011
Scope 1	379,457	356,348	396,588	388,061	419,306
Halogenated hydrocarbons	4,964	6,234	6,548	6,014	7,092
Scope 2	317,183	376,159	418,214	432,103	443,583
Total (Scope 1 and scope 2)	701,604	738,741	821,350	826,178	869,981
Total per employee*	6.97	7.77	8.95	9.82	10.69
Scope 3					
Business flights	204,179	189,714	188,924	177,678	160,632
Energy-intensive utilities**	20,064	-	-	-	-

\* Data collected by Group SHE. | \*\* Compressed air and liquid nitrogen.

Indianapolis and Branchburg, which switched to a sustainable source, i.e. wind power, for their scope 2 energy. In doing so they saved 40,407 tonnes of CO<sub>2</sub>.

#### Halogenated hydrocarbons tonnes\*\*\*

	2015	2014	2013	2012
Inventory	154.6	167.3	176.4	172.1
Consumed	1.8	2.6	3.7	2.6

\*\*\* Global inventory including Chugai, Genentech and Ventana.

Another initiative to reduce GHG emissions is reducing our use of halogenated substances that are used for refrigeration and/or fire suppression and can remain in the atmosphere for a long period of time. We planned to reduce halogenated substances by 90% (from 2002 baseline) at all Roche legacy sites by 2015. This excludes acquisitions (including Genentech and Ventana), which are working towards their own timelines (2018/2022). With great efforts we managed to achieve a 89.8% reduction and we have now set a new goal to further reduce halogenated substances by 20% at Roche legacy sites over the next five years. We continue to examine alternatives and work with

refrigeration and fire suppression suppliers to achieve these reductions.

#### CDP (Carbon Disclosure Project) achievements

In 2015, Roche was identified as a global leader for its actions and strategies in response to climate change and was awarded a position on The Global Climate 'A' List by CDP, the international not-for-profit organisation that drives sustainable economies. Furthermore, Roche obtained a disclosure score of 100 and was, therefore, also identified as a leader in the DACH region (Germany, Austria, Switzerland) for the quality of climate change-related information for the third successive year. Roche was therefore awarded a position on the DACH Climate Disclosure Leadership Index.

The disclosure score confirms that we understand the business issues related to climate change and are incorporating climate-related risks and opportunities into our core business. Roche's performance score signals that we are measuring, verifying and managing our carbon footprint.



## Managing limited water resources

### *Reduce, recycle and purify*

For the pharmaceutical industry globally, poor-quality water is resulting in higher costs for purification and greater risk of product contamination. Almost all chemical, biotech, pharmaceutical and diagnostics manufacturing processes involve water as a reagent, solvent, cleaning and cooling agent. We also use water as an energy carrier in heating and refrigeration installations.

Our 2015–2020 water goal is to reduce consumption per employee by 10%, weighted according to the water stress for a respective region. Roche sites are either working on or implementing programmes to reduce water consumption and recycle or reuse water. For example, in 2015 Roche Basel invested in technology to save water and money. Many chemical reactions require cooling as they are performed at high temperatures. Conventional laboratory condensers are attached directly to a cold water tap, consuming about 2.5 litres of water per minute. At an average price of CHF 2.40 per m<sup>3</sup>, the costs of the water used for synthesis would come to CHF 2,160 per condenser and year. Using air as a coolant instead for multiple reactions running at the same time adds up to considerable savings. Using this new technology also reduces risks: water supplies can become disconnected or spring a leak, and this can very quickly flood the laboratory.

Roche Penzberg has earned several awards for innovation and environmental responsibility for its self-powered, high-efficiency wastewater treatment plant. Wastewater from the site is collected and

delivered to an on-site treatment plant, where it is treated biologically under anaerobic conditions. This produces biogas with a mean methane content of 72%, which is desulphurised and burnt in a combined heat and power unit plant to produce electricity and heat. Annually, it generates electricity with a value of EUR 350,000. The heat by-product is then used to heat four buildings with energy worth EUR 120,000 per year. Additionally, external combustion and transportation of aqueous solvent mixtures are avoided, saving another EUR 60,000 per year. Generation of electricity from sources other than fossil fuels reduces our CO<sub>2</sub> emissions, and, importantly, as the process produces more energy than is needed to run the plant, it changes water treatment from an energy user to an energy producer. Treated wastewater meets all respective requirements and can be discharged into the local river. We also support global efforts to promote water protection. We aim to reduce total wastewater toxicity in selected production plants by 10% by 2020 from a 2015 baseline.

Approximately half of the water we draw is used in cooling circuits. Although this water is not chemically contaminated, we analyse it before directly discharging it. Furthermore, we only discharge wastewater and pollutants if they comply fully with relevant regulations, including pre-treatment requirements. We record total organic carbon (TOC) in discharged water following processing in a wastewater treatment plant. At approximately 90%, measured as TOC reduction, the elimination rates in our wastewater treatment plants

Wastewater released from our water treatment plants meets the requirements for release into rivers or lakes.



are already high. We seek to minimise further contamination of water by:

- Reducing discharges of toxic and poorly biodegradable substances and heavy metals
- Reducing the generation of wastewater
- Treating or pre-treating wastewater, with ozone in some cases, for non- or poorly-degradable contaminants.

Our water usage has remained relatively unchanged over the past years. In 2015, we withdrew 18.9 million m<sup>3</sup> of water from different sources. Of this, approximately 18.5% was consumed, becoming a constituent part of a product, being vaporised in refrigeration or air conditioning plants, used for irrigation, or being discharged to salt or brackish waters and thus lost as fresh water. Approximately 45% of the water that we discharged, which includes chemically contaminated water, was sent to its final destination via treatment plants. This increase over 2014 was due to an increase in sites reporting this parameter. In addition, 160 kg of heavy metals were discharged from our operations into waterways.

The demand for fresh water is increasing and an effective water management is crucial to avoid water scarcity. We have procedures in place which ensure efficient water use and business continuity. Water-

*By pre-treating wastewater and reducing discharges, we minimise contamination of water.*

related issues can affect our reputation and investors are increasingly showing interest in our water policy and performance.

#### Water usage and discharge

	2015	2014	2013	2012
Water withdrawn (million cubic metres)	18.9	18.4	19.7	19.8
Water consumed (million cubic metres)	3.5	3.0	3.5	3.0
Wastewater discharged to treatment plant (million cubic metres)	7.8	5.8	5.4	5.6
Organic matter discharged to waterways after treatment (tonnes)	190	141	144	140
Heavy metals discharged to waterways after treatment (kilogrammes)	160	236	178	374

## Waste management

### *Minimising waste & maximising recycling*

Roche strives to implement the following strategy in its activities—avoid, reduce, reuse, recycle, thermally destroy. We permit landfilling only as a last resort and, even then, only for inert materials such as slag or incineration ash. Depending on the availability of suitable local waste-treatment plants, we may dispose of non-hazardous general waste in authorised landfills. Roche does not accept landfilling of chemical waste or other hazardous materials.

In 2015, we set new goals for general and chemical waste reduction:

- Reduce general waste per employee by 10% over a five-year period
- Reduce landfilling of organic chemicals by 50% over a five-year period.

We accept responsibility for all waste generated at our operations, including that previously deposited at our sites or landfills.

In 2015, we continued with our remediation programmes. Activities to cleanup soils at our former site in Nutley were completed by year-end. Cleanup of groundwater is underway but will take several years to complete. We plan to divest the property in 2016 but will retain responsibility for the environmental cleanup post divestment. Roche's remediation project at Nutley is a clear commitment to the long-term value of the site in the community.

After two years of planning, remediation in the Kesslergrube landfill in Grenzach began in September 2015, with the construction of the necessary infrastructure including a bypass road and a temporary ship-landing dock. Excavation of the contaminated soil should start in 2016. With careful planning and a step-by-step approach, Roche ensures safe and efficient execution of a complex remediation programme, keeping emissions to a minimum. Close dialogue is maintained with the local residents.

Roche produces relatively low volumes of chemicals and thus generates small quantities of chemical waste. We nevertheless continue to reduce already low volumes of waste as our production of biotech products increases and our chemical-based production declines. In 2015, Roche generated 25,742 tonnes of chemical waste. General waste (incinerated and landfilled) increased by 57.3%. This was largely due to demolition and clean-up activities at our Nutley site, which made up 55.1% of the 26,314 tonnes generated. Construction and demolition waste comprised a further 8,223 tonnes, where our sites in South San Francisco and Grenzach were the main contributors.

**Waste** tonnes

	2015	2014	2013	2012
General waste generated	26,314	16,730	13,445	13,791
Chemical waste generated	25,742	27,142	30,843	25,703
Construction waste	8,223	15,064	8,618	12,555

Our Louisville distribution facility is the first Genentech site to achieve zero waste to landfill. Over the last few years, the site has disposed of increasing volumes of cold-chain pallet shipping containers, containing a mixture of cardboard, styrofoam, water-filled cold packs and wood pallets. To address this challenge, the site implemented a comprehensive recycling process, diverting cardboard, wood, plastics and styrofoam, which previously took up 80% of the landfill volume. With the facility now delivering the shipping containers to recyclers, approximately 50% of the shipping containers go to a vocational programme employing adults with special needs to disassemble and recycle the various materials.

Currently this programme receives approximately USD 10,000 through these activities. The financial value of the recyclable materials is re-invested to provide employment to people with disabilities. Louisville is working with the vocational programme to enhance the work stream to process 100% of the shipping containers. Having maximised the recycling of the various site waste streams, the Louisville site

sends any non-recyclable waste (approximately 5% of the site's total) to a waste-to-energy plant, thereby ensuring that value is recovered from 100% of the site's waste and that none is sent to landfill.

Roche is also acting on concerns about the impact of pharmaceuticals on the environment by considering the entire lifecycle of its products. There are two goals: first to safeguard the eco-system; and secondly, to protect our business against potential long-term financial and reputational risks.

MabThera/Rituxan, Avastin, Herceptin and Lucentis are some of our monoclonal antibodies, together generating more than CHF 21 billion sales in 2015. They have a low excretion rate and are judged by respective authorities to present no significant risk to sewage works and surface waters. They are therefore termed 'benign in nature' and constitute environmentally sustainable compounds.

To encourage green chemistry, we have set up a technical working group with presence in the US and in Europe. The group is dedicated to developing and implementing best practices to promote green chemistry throughout Roche and Genentech. Furthermore, the Roche Environmental Awareness in Chemical Technology (REACT) Award is given annually to employees who demonstrate any of a number of environmentally friendly approaches to chemical synthesis.

## Partnering to support local communities

### *Our philanthropic engagement*

Roche is committed to sustainable philanthropic activities, which span community involvement, humanitarian projects, science, education, art and culture. Our goal is to establish long-term partnerships by focusing on projects that add lasting value to society.\*

#### **Responding to natural disasters**

Following natural disasters, Roche works with local partners to provide immediate support with essential donations of medicines and long-term support to help communities re-build.

In 2015, Nepal was struck by a devastating earthquake, killing or injuring thousands and displacing millions. In response, Roche donated over 180,000 vials of Rocephin, an antibiotic which treats a wide range of infectious diseases and the most serious forms of tuberculosis and meningitis. Roche India used its local stock to provide immediate help. Additionally, Chugai donated JPY 3 million to 'Japan Platform,' an emergency aid organisation.

*After a natural disaster, Roche reacts to immediate needs and provides sustainable help.*

Five years after widespread flooding in Pakistan, Roche helped to open a new primary school in Jacobabad, a city which was particularly hard-hit. Roche helped to build, equip and operate the school in collaboration with The Citizens Foundation, a local non-profit organisation focusing on improving education. Of the 131 students who have already enrolled, over 30% are girls. The school aims to increase this to 50% to support education equality in the country.

Another important initiative in this reporting year was disaster relief following the floods in Malawi in January 2015. According to the United Nations Children's Fund, over 600,000 people were affected. Roche made a financial donation to support disaster relief efforts, which included distribution of mosquito nets to protect displaced people from malaria and other diseases.

#### **Supporting education**

Roche has a long-standing philanthropic commitment in Malawi, Southeast Africa. Since 2003, we have supported education programmes for HIV/AIDS-orphaned children there. Each year, employees get involved by raising money and participating in the Roche Children's Walk.\*\*

There was record participation in 2015, with 19,000 employees from more than 130 sites, raising approximately CHF 1.3 million. The majority of these funds will be used to provide children in Malawi with education, school supplies, water and sanitation. Roche's commitment to Malawi spans over 12 years and has helped to support over 17,000 children in their education. The remaining funds collected through the Children's Walk are used to support different children's programmes in more than 90 local communities where Roche operates around the world.

Roche also supports several initiatives which provide accessible high-quality, holistic education to disenfranchised young adults. One such programme is with the innovative Maharishi Institute in South Africa, which provides free tertiary education to young people who have experienced particular hardship.

*19,000 employees raised funds to give children around the world a better life.*

Roche has worked with the school to create a wellbeing programme offering education on topics such as HIV/AIDS prevention, healthy lifestyle management and personal finance skills.

Another important initiative was from the Genentech Foundation, which provides support to the Eastside College Preparatory School in Palo Alto, California. Its goal is to make quality education available to children living in difficult neighbourhoods. In 2015, for the 16<sup>th</sup> year in a row, every Eastside graduate has gone on to a four-year college.

Roche made a financial donation to support disaster relief efforts in Malawi, which included distribution of mosquito nets.



\* [www.roche.com/philanthropy](http://www.roche.com/philanthropy) | \*\* [www.roche.com/childrenswalk](http://www.roche.com/childrenswalk)

## The next generation of scientists

### *Helping students unleash their potential*

As a research-based healthcare company, science and technology are at the core of what we do and we have supported multiple programmes to promote an interest in these disciplines among young people for many years now. At the same time, we seek to inform them about educational and career opportunities in these areas.

By building a foundation for science and technology, providing real-world science skills and enabling continued education and careers in biotech, we hope to help grow the next generation of innovators. ‘Science on the Move’ and the ‘Helix Cup,’ projects conducted in Switzerland and the US respectively, are leading examples of our efforts to support young scientists.

#### **Experimenting with science**

Established in 2011, ‘Science on the Move’ was set up for hopeful discoverers across Switzerland. Open to secondary classes, the project culminates with a bi-annual competition, which engages young people in science, teamwork and fun. The programme fosters students’ interest in biology and science and identifies the class with the greatest dedication and commitment in these fields.

The competition challenges a broad range of abilities. Students explore various experiments and theories, and then showcase their scientific communication skills in traditional and innovative ways. ‘Science on the Move’ consists of three phases: in phase one and two, the goal is to conduct two biological and biochemical experiments in the laboratory and

communicate the results through a scientific report and a poster in English. In the final round, the ten best-performing classes are invited to a special event at Roche in Basel to give an innovative, live presentation of their results and experiences. The class with the most creative, imaginative and convincing presentation is selected by an expert jury and awarded a science week abroad.

In 2015, 28 classes participated in the programme and the top ten travelled to Basel to display their scientific knowledge, enthusiasm and creativity. The winners, Class 4G from Kantonsschule Zug, received a week-long science trip to the UK, where they visited the Roche UK site for a creativity workshop with local science students, attended lectures at the London School of Hygiene and Tropical Medicine and the Royal Society of Chemistry, and visited several renowned science museums. Sponsored by Roche and run by the SimplyScience Foundation, ‘Science on the Move’ is an initiative of ‘scienceindustries,’ representing the Swiss Business Association for the Chemical, Pharmaceutical and Biotech industries.\*

#### **Solving healthcare challenges**

Genentech has a long history of supporting science education in South San Francisco (SSF), where the main company site is located. In 2015, Genentech introduced the ‘Helix Cup,’ a hands-on competition designed to bring science alive for all students in the South San Francisco Unified School District (SSFUSD).



Genentech employee volunteers serve as coaches and as mentors in a weekly tutoring programme.

‘Helix Cup’ is an annual science competition that focuses on the real-world challenges associated with delivering healthcare and medicine where it is needed. Each challenge gives students an opportunity to deepen their understanding of key concepts in science through an engaging format that also helps develop skills such as creativity, problem-solving and teamwork.

In 2015, 650 students participated in the ‘Helix Cup,’ designing solutions to potential barriers such as delivering medicines to remote areas and keeping medicine cool during delivery. After three rounds of competitive challenges, top teams from each school came to Genentech’s SSF site to compete in the fourth and final challenge, which determined the winning team.

Genentech employees also get involved in the fun. Volunteer coaches support students throughout the competition by encouraging and directing teams, explaining what they do at Genentech and serving as positive role models by sharing what inspired them during their career journey.

‘Helix Cup’ is part of Genentech’s Futurelab programme, a multi-year partnership with the SSFUSD. The programme involves major commitments, including the construction of a USD 6 million, stand-alone biotech teaching facility on the SSF High School campus, slated to break ground in 2016. It also includes the creation of a state-approved high school biotech curriculum, and college scholarships for promising students pursuing degrees in science, technology, engineering and math fields.

In addition to serving as coaches, employees acted as mentors in a weekly tutoring programme for elementary school students, as advisors to SSFUSD Science Teachers, and even donated their hard work on projects to improve playgrounds and facilities at SSF schools.\*\*

*More than 1,500 Genentech employees volunteered for Futurelab in the programme’s first year.*

\* [www.roche.com/science\\_education](http://www.roche.com/science_education) | \*\* [www.gene.com/good/giving/futurelab](http://www.gene.com/good/giving/futurelab)

# Corporate Governance

*Roche's Corporate Governance aims at safeguarding  
the sustainable interests of the company.*

7

## *years running*

*Roche ranked as the most sustainable healthcare  
company by the Dow Jones Sustainability Indices*

# Principles

Roche is committed to serving all its stakeholders. As a basis for the successful implementation of this commitment our Corporate Governance principles accordingly put the focus of our business activities on sustainable value creation and innovation and prescribe a management culture conforming to recognised standards of good corporate governance and a policy of transparent communication.

A strong Board of Directors, which represents the interests of the shareholders and all other stakeholders, and highly skilled managers that act with integrity are extremely important.

In 2015, for the 7<sup>th</sup> consecutive year, Roche has been recognised by the Dow Jones Sustainability Indices as the Group Leader in sustainability within the pharmaceuticals, biotechnology and life sciences industry. Sustainability is at the core of our business practices and this award reflects our commitment to running our business in a way that is ethical, responsible and creates long-term value for stakeholders.

This Corporate Governance Report sets out the structures, processes and rules which Roche takes as the basis for well-functioning corporate governance. In doing so, Roche complies with all relevant corporate

governance requirements, in particular with all applicable laws, the Swiss Stock Exchange (SIX Swiss Exchange) directives and the Swiss Code of Best Practice for Corporate Governance promulgated by the Swiss business federation 'economiesuisse'. The company's internal governance framework, particularly its Articles of Incorporation and Bylaws, embodies all the principles needed to ensure that the company's businesses are managed and supervised in a manner consistent with good corporate governance, including the necessary checks and balances.<sup>1</sup>

The printed Annual Report contains selected links to the Roche website ([www.roche.com](http://www.roche.com)). Readers are thus provided not only with a 'snapshot' of our company at the reporting date but are also directed to sources which they can consult at any time for up-to-date information about corporate governance at Roche. Whereas each annual report covers a single financial year ending 31 December, our website contains information of a more permanent nature, as well as the latest Roche news. The company's Articles of Incorporation, Bylaws and the curricula vitae of the members of the Board of Directors and the Corporate Executive Committee are published on our website.

For further details please refer to the following report.

## Annual General Meeting

Annual General Meeting

Board of Directors

Board Committees

Presidium and Nomination Committee

Remuneration Committee

Audit Committee

Corporate Governance and Sustainability Committee

Corporate Executive Committee

CEO	COO Pharma	COO Diagnostics	CFO	HR	General Counsel
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Enlarged Corporate Executive Committee

gRED	pRED	Partnering	Communications
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Chugai

<sup>1</sup> [www.roche.com/governance](http://www.roche.com/governance)

## Board of Directors

At the 97<sup>th</sup> Annual General Meeting (AGM) of Roche Holding Ltd, on 3 March 2015, shareholders re-elected Christoph Franz as Chairman of the Board of Directors.

Furthermore, the AGM re-elected André Hoffmann, Pius Baschera, John Bell, Paul Bulcke, DeAnne Julius, Andreas Oeri, Severin Schwan, Peter R. Voser and Beatrice Weder di Mauro and elected Bernard Poussot and Richard P. Lifton as new members of the Board of Directors for a term of one year as provided by the Articles of Incorporation.

In addition the AGM elected Christoph Franz, André Hoffmann, Peter R. Voser and Bernard Poussot as members of the Remuneration Committee.

At its organising meeting immediately following the AGM, the Board of Directors has determined the structure and composition of its remaining committees as shown on page 141 (see also pages 12 to 13 and page 146 'Board of Directors and Corporate Executive Committee').

On 1 March 2016, at the forthcoming AGM the Board of Directors nominates the Chairman, all remaining Members of the Board of Directors for re-election. As announced in May 2015, DeAnne Julius who is a member of the Board of Directors since 2002, decided not to stand for re-election. As announced in December 2015, in addition Beatrice Weder di Mauro who is a member of the Board since 2006 decided not to stand for re-election in 2016. The Board nominates Mrs Julie Brown and Mrs Claudia Süssmuth Dyckerhoff for election as new members of the Board of Directors at the AGM 2016.

Moreover, the Board of Directors nominates Christoph Franz, André Hoffmann, Peter R. Voser and Bernard Poussot for re-election and Richard P. Lifton for election as members of the Remuneration Committee by the AGM in 2016.

As in 2015, the Board of Directors nominates BDO AG as the independent proxy for the period from 2016 until the conclusion of the 2017 ordinary Annual General Meeting of Shareholders for election by the AGM.

## Board of Directors and Board Committees

Composition as at 31.12.2015

Board of Directors	Secretary to the Board of Directors	Honorary Chairman of the Board of Directors
Dr Christoph Franz (1960) André Hoffmann (1958) (representative of the shareholder group with pooled voting rights)	C, D*, E A, C*, D, E	Chairman Vice-Chairman
Dr Andreas Oeri (1949) (representative of the shareholder group with pooled voting rights)	A*, E	
Prof. Dr Pius Baschera (1950) Prof. Sir John Irving Bell (1952) Paul Bulcke (1954) Dame DeAnne Julius (1949) Prof. Dr Richard P. Lifton (1953) Bernard Poussot (1952) Dr Severin Schwan (1967) Peter R. Voser (1958) Prof. Dr Beatrice Weder di Mauro (1965) Dr Gottlieb A. Keller (1954)	A, E B, E B, E B*, E E C, E F C, E B, E	
Dr Fritz Gerber (1929)		

A Corporate Governance and Sustainability Committee  
C Remuneration Committee  
E Non-executive director  
\* Committee chairperson

## Board of Directors

### Board Committees

- Presidium and Nomination Committee
- Remuneration Committee
- Audit Committee
- Corporate Governance and Sustainability Committee

First elected
2011
1996
1996
2007
2001
2011
2002
2015
2015
2013
2011
2006

B Audit Committee  
D Presidium/Nomination Committee  
F Executive director

## Corporate Executive Committee

In 2015, memberships of the Corporate Executive Committee remained unchanged.

Information on each member of the Corporate Executive Committee and of the Enlarged Corporate Executive Committee is listed below (see also pages 18 to 19 and page 146 'Board of Directors and Corporate Executive Committee').

Composition as at 31.12.2015			
	Name (year of birth)	Position	Since
<b>Corporate Executive Committee</b>	Dr Severin Schwan (1967)	CEO of the Roche Group	2008
	Daniel O'Day (1964)	COO Division Roche Pharmaceuticals	2010
	Roland Diggelmann (1967)	COO Division Roche Diagnostics	2012
	Dr Alan Hippe (1967)	Chief Financial and IT Officer	2011
	Silvia Ayyoubi (1953)	Head Group Human Resources	2008
	Dr Gottlieb A. Keller (1954)	General Counsel	2003
<b>Enlarged Corporate Executive Committee</b>	Osamu Nagayama (1947)	Chairman and CEO Chugai	2006
	Dr Michael D. Varney (1958)	Head Genentech Research and Early Development (gRED)	2015
	Prof. John C. Reed (1958)	Head Roche Pharma Research and Early Development (pRED)	2013
	Dr Stephan Feldhaus (1962)	Head Group Communications	2010
	Dr Sophie Kornowski-Bonnet (1963)	Head Roche Partnering	2012
	Per-Olof Attlinger (1960)	KPMG Klynveld Peat Marwick Goerdeler SA (reporting years 2004–2008) KPMG AG (since 2009) Auditor in charge: John A. Morris (2004–2010) Ian Starkey (since 2011)	
<b>Chief Compliance Officer</b>	Dr Urs Jaisli (1956)		

## Corporate Executive Committee

## Enlarged Corporate Executive Committee

Corporate Executive Committee					
CEO	COO Pharma	COO Diagnostics	CFO	HR	General Counsel
Enlarged Corporate Executive Committee					
gRED	pRED	Partnering	Communications		
Chugai					

## Group structure and shareholders

Roche's operating businesses are organised into two divisions: Pharmaceuticals and Diagnostics. The Pharmaceuticals Division comprises the two business segments Roche Pharmaceuticals and Chugai, whereas Genentech as the former third segment has been integrated into Roche Pharmaceuticals. The Diagnostics Division consists of the following four business areas: Diabetes Care, Molecular Diagnostics, Professional Diagnostics and Tissue Diagnostics.

Business activities are carried out through Group subsidiaries and associated companies. Detailed information on Roche Holding Ltd and on significant subsidiaries and associated companies (including company name, listing information, domicile, share capital, and equity interest) are listed in the Finance Report, Note 31 to the Roche Group Consolidated Financial Statements ('Subsidiaries and associates', page 113).

Major shareholders are listed in the Finance Report, Notes 21 and 30 to the Roche Group Consolidated Financial Statements ('Equity attributable to Roche shareholders' and 'Related parties', pages 82 and 110)

and in Note 4 to the Financial Statements of Roche Holding Ltd ('Significant shareholders', page 144). In addition, significant shareholders are published on the relevant webpage of the disclosure office of SIX Exchange Regulation [www.six-exchange-regulation.com/en/home/publications/significant-shareholders.html](http://www.six-exchange-regulation.com/en/home/publications/significant-shareholders.html).

André Hoffmann, Vice-Chairman of the Board of Directors and Chairman of the Remuneration Committee, and Andreas Oeri, member of the Board of Directors and Chairman of the Board's Corporate Governance and Sustainability Committee, serve in their respective capacities on the Board and its committees as representatives of the shareholder group with pooled voting rights and receive the remuneration set forth in the Remuneration Report on page 171 and in the Finance Report, Note 30 to the Roche Group Consolidated Financial Statements ('Related parties', page 110). With the exception of Jörg Duschmalé, who works as a post-doc at Roche, no other relationships exist with the shareholders with pooled voting rights.

There are no cross-shareholdings.

### Pharma

Roche Pharma (incl. Genentech)

Chugai

Professional Diagnostics

Molecular Diagnostics

Tissue Diagnostics

Diabetes Care

### Diagnostics

Composition as at 31.12.2015

## Capital structure

Information on Roche's capital structure is provided in the Finance Report, Notes to the Financial Statements of Roche Holding Ltd (page 143). Additional details are contained in the Articles of Incorporation of Roche Holding Ltd.<sup>2</sup>

Movement in recognised amounts during the last three financial years are detailed in the Finance Report, Notes to the Financial Statements of Roche Holding Ltd (page 144).

The company has a share capital of CHF 160,000,000, divided into 160,000,000 fully paid bearer shares with a nominal value of CHF 1 each. There are no restrictions on the exercise of the voting rights of these shares. Upon deposit, shares can be voted without any restrictions.

There is no authorised or conditional capital.

In addition, 702,562,700 non-voting equity securities (NES) have been issued in bearer form. They do not form part of the share capital and confer no voting rights. Each NES confers the same rights as one share to participate in available earnings and in any liquidation proceeds following repayment of the share capital. Roche's NES and the rights pertaining thereto

(including the provisions protecting the interests of NES holders) are described in §4 of the Articles of Incorporation of Roche Holding Ltd.

Information on debt instruments which have been issued and on outstanding bonds is provided in the Finance Report, Note 20 to the Roche Group Consolidated Financial Statements ('Debt', page 77).

Information on employee stock options is provided in the Finance Report, Note 26 to the Roche Group Consolidated Financial Statements ('Equity compensation plans', page 94), including detailed information on the 'Stock-settled Stock Appreciation Rights (S-SARs) Plan', the 'Roche Restricted Stock Unit Plan', the 'Roche Performance Share Plan', 'Roche Connect' and the 'Roche Option Plan'.

Roche has issued no options apart from employee stock options as described in the Finance Report, Note 26 to the Roche Group Consolidated Financial Statements ('Equity compensation plans', page 94) and options issued in connection with debt instruments.

Neither the options awarded to employees nor the debt instruments which have been issued have any effect on Roche's share capital.

<sup>2</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

# Board of Directors and Corporate Executive Committee

Information on each member of the Board of Directors and on each member of the Corporate Executive Committee is listed on pages 141 and 142. Members of the Board of Directors have no age limit or restriction on their term of office. Curricula vitae of all current and of former members (of the last five years) of both bodies and other information (including information on the years of their first election as board members, additional positions, memberships and activities) are available and continuously updated on the Internet.<sup>3</sup>

Rules pursuant to article 12 para. 1 point 1 VegüV on the number of permitted activities of the Board of Directors and the Corporate Executive Committee members are outlined in §22.4 of the Articles of Incorporation of Roche Holding Ltd.<sup>4</sup>

Since 2014 the Annual General Meeting elects all members of the Board of Directors, the Chairman of the Board of Directors and the members of the Remuneration Committee on an annual basis in elections in which each nominee is voted on separately (see §18 of the Articles of Incorporation of Roche Holding Ltd<sup>4</sup> and the Minutes of the 97<sup>th</sup> Annual General Meeting of Roche Holding Ltd, held on 3 March 2015<sup>5</sup>).

With the exception of Severin Schwan none of the members of the Board of Directors in office at the end of 2015 has been a member of Roche's Corporate Executive Committee or served in an executive capacity at any Group subsidiary during the three financial years preceding the current reporting period and they are for lack of existing business connections with any Group subsidiary independent.

The Principles of Governance (principles of delegation and competence, reservation of powers and management of a group of companies) of the executive bodies of the company include economic, environmental and social topics. The principles together with the internal organisation of the Board of Directors, the division of authority and responsibilities between the Board and management, the remits of the Board committees, and the information and control mechanisms available to the Board in its dealings with corporate management, are governed by the Bylaws.<sup>6</sup>

The Board of Directors of Roche Holding Ltd is organised so as to ensure that the Group conducts its businesses responsibly and with a focus on long-term value creation. To this end, the Roche Board has delegated certain responsibilities to several committees.<sup>7</sup> Their composition and chairpersons as at 31 December

<sup>3</sup> [www.roche.com/board\\_of\\_directors](http://www.roche.com/board_of_directors) and [www.roche.com/executive\\_committee](http://www.roche.com/executive_committee)

<sup>4</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

<sup>5</sup> [www.roche.com/annual\\_general\\_meetings](http://www.roche.com/annual_general_meetings)

<sup>6</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

<sup>7</sup> [www.roche.com/committees](http://www.roche.com/committees)

<sup>8</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

## Board of Directors and Board Committees

### Corporate Executive Committee



2015 are described on page 141. Each committee's authorities and responsibilities are defined in detail in the Bylaws of the Board of Directors.<sup>8</sup>

All the committees are chaired by independent directors.

According to the Bylaws of the Board of Directors, a Board meeting may be convened without the Chairman present at the request of any of its members. The Roche Board meets once a year to assess the Chairman's performance. This meeting, which is not attended by the Chairman, is chaired by the Vice-Chairman.

As part of the Management Information System (MIS), the Board of Directors is informed about the most important issues, sales performance etc. on a monthly basis. The Board has access to an electronic information platform which provides timely information to the Board of Directors and the Board's committees as does the system of controls as set forth below.

The Board of Directors has established a system of controls which is continuously monitored by the Audit Committee, by the Corporate Governance and Sustainability Committee and by the Board of Directors and consists of the following elements:

- Report on operating and financial risks (risk management system). The Roche Group has established a risk management process covering the entire company with a system in place to identify and manage all type of risks potentially affecting its business (including economic, environmental, and social impacts, risks and opportunities and containing stakeholder input). The Board of Directors is the highest governance body involved. Roche's Risk Management Policy sets out the approach and accompanying responsibilities. The Pharmaceuticals and Diagnostics Divisions and global functions conduct a formal risk assessment process at least once a year and must develop risk plans for their most material risks. These are monitored and deviations reviewed in regular performance dialogues. The consolidated Group Risk Report including target risk profile is discussed by the Corporate Executive Committee and approved together with the Group Business Plan. All material risks are reviewed by the Board on a yearly basis. The process is subject to regular reviews, with findings presented to the Audit Committee and the full Board. The effectiveness of the risk management process is monitored by the Group Risk Advisory team and the overall process is regularly reviewed by external auditors.
- For details on risk management, including risk factors and the Risk Management Policy see 'Risk

Management & Compliance' on our website.<sup>9</sup> Financial risk management is specifically described in the Finance Report.<sup>10</sup>

- System of internal controls over financial reporting (see pages 125 and 127 of the Finance Report)
- Internal audit

Group Audit reports to the General Counsel, has direct access and gives regular briefings to the Audit Committee and to the Corporate Governance and Sustainability Committee about ongoing activities and audit reports. The Chief Audit & Risk Advisory Executive attends the Audit Committee and partly the Corporate Governance and Sustainability Committee meetings, as do the external auditors. Group Audit is an independent appraisal function, which evaluates and reviews the Group's activities as a service to management. The annual audit plan with yearly defined focus areas (e.g. emerging markets, third-party management) is validated by Senior Management and presented to the Audit Committee. The Roche Group is committed to maintaining a high standard of internal control throughout its worldwide operations. Management is responsible for assessing the business risks in all aspects of its operation and for implementing effective and efficient processes and controls whilst ensuring compliance with internal and external rules and regulations.

By conducting operational audits, Group Audit determines management's response to the risks surrounding business processes and systems, and evaluates the appropriateness, completeness and

efficiency of the processes and controls. Action plans to implement necessary changes and enhancements are developed together with the business/auditee and are tracked to completion.

- Statutory auditors, see page 152
- Chief Compliance Officer and Compliance Officers in subsidiaries, see page 155
- Safety, Health and Environmental Protection Department<sup>11</sup>
- Corporate Sustainability Committee<sup>12</sup>
- Science and Ethics Advisory Group (SEAG), for issues relating to genetics and genetic engineering<sup>13</sup>

The members of the Corporate Executive Committee are invited to attend meetings of the Board of Directors for, and report in person on, those agenda items concerning them. When the situation warrants, members of the Enlarged Corporate Executive Committee may also be invited to attend. The Board committees invite the Chairman of the Board and Corporate Executive Committee members to deliver reports at committee meetings and may elect to commission independent expert reports and call on the services of consultants.

Each year several black-out periods are imposed during which senior employees are prohibited from trading in company stock. The following black-out periods are in effect for 2016:

- 26 December 2015 to 28 January 2016
- 1 April to 19 April 2016
- 26 June to 21 July 2016

<sup>9</sup> [www.roche.com/risk\\_management\\_and\\_compliance](http://www.roche.com/risk_management_and_compliance)

<sup>10</sup> Additional information is provided in the Finance Report, Note 29 to the Roche Group Consolidated Financial Statements, 'Risk management', page 101.

<sup>11</sup> [www.roche.com/environment](http://www.roche.com/environment)

<sup>12</sup> [www.roche.com/sustainability](http://www.roche.com/sustainability)

<sup>13</sup> [www.roche.com/ethical\\_conflicts](http://www.roche.com/ethical_conflicts)

<sup>14</sup> Remuneration Committee members recuse themselves from deliberations and decisions on matters that affect their interests.

1 October to 20 October 2016  
Black-out periods can be changed by the Chairman of the Board of Directors if circumstances warrant.

In 2015, the Board of Directors met for 7 meetings, generally each from 3 to 6 hours in length; including a full-day meeting and in addition for a 3-day visit to a major subsidiary\*\*. The Board committees met as follows in 2015:

- Presidium of the Board of Directors/Nomination Committee: 9 meetings (approx. 2 hours each\*\*), including 2 telephone conferences
- Remuneration Committee: 4 meetings<sup>14</sup> (approx. 2 to 3 hours each\*\*)
- Audit Committee: 5 meetings (approx. 3 to 4 hours each\*\*)
- Corporate Governance and Sustainability Committee: 4 meetings (approx. 3 hours each\*\*)

The Board of Directors regularly conducts an assessment (self-assessment/assessment by third parties via electronical survey and personal interviews) of its performance. In 2015, an independent assessment by a third party was conducted.

Members of the Corporate Executive Committee have a maximum ordinary notice period of twelve months. There are no change-of-control clauses in the employment contracts.

There are no management contracts which fall within the scope of Subsection 4.4 (annex) of the SIX Directive on Information relating to Corporate Governance.

#### Board and Board Committees attendance 2015

	Board	Presidium/ Nomination Committee	Remuneration Committee	Audit Committee	Corporate Governance and Sustainability Committee
<b>Number of meetings</b>	<b>7</b>	<b>9</b>	<b>4</b>	<b>5</b>	<b>4</b>
Ch. Franz	7	9	4	5*	4*
A. Hoffmann	6	8	3	-	4
P. Baschera	7	-	-	-	4
J. Bell	7	-	-	5	-
P. Bulcke	7	-	-	5	-
D. Julius	7	-	-	5	-
R.P. Lifton	6	-	-	-	-
B. Poussot	6	-	3	-	-
S. Schwan	7	-	-	5*	-
A. Oeri	7	-	-	-	4
P.R. Voser	5	-	4	-	-
B. Weder di Mauro	7	-	-	4	-

- Not a member of that committee.

\* Invited as a guest to these Board committee meetings.

\*\* These figures indicate the actual length of meetings and do not include the directors' extensive pre-meeting preparations and post-meeting follow-up activities.

## Remuneration, shareholdings and loans

All details regarding remuneration, shareholdings and loans (content and method of determining the compensation and the shareholding programmes, basic principles and elements of compensation and shareholding programmes for serving and former members of the Board of Directors and Corporate Executive Committee, together with a description of the authorities and procedure for determining such) are set forth in the separate Remuneration Report on pages 156 to 191 and in the Finance Report, Notes 21 and 30 to the Roche Group Consolidated Financial Statements ('Equity attributable to Roche shareholders' and 'Related parties', pages 82 and 110), and are listed in Note 6 to the Financial Statements of Roche Holding Ltd ('Board and Executive shareholdings', page 145).

The following rules on Remuneration, shareholdings and loans for the Board of Directors (Board) and the Corporate Executive Committee (CEC) are set forth in the Articles of Incorporation (AoI)<sup>15</sup>:

Content	Rules in AoI <sup>15</sup> for	
	Board	CEC
Rules on the principles applicable to performance-related pay	§25.1–6	§25.1–6
Rules on the principles to the allocation of equity securities, convertible rights and options	§25.7	§25.7
Additional amount for payments to members of the Executive Committee appointed after the vote on pay at the General Meeting of Shareholders		§24.5
Rules on loans, credit facilities and post-employment benefits	§25.1 and 3	§25.2 and 3
Rules on the vote on pay at the AGM	§24	§24

## Participatory rights of shareholders

The participatory rights of shareholders are defined in Roche's Articles of Incorporation.<sup>15</sup> As Roche shares are issued to bearer, there are no restrictions on admission to Annual General Meetings, with the exception that shares must be deposited within a specified period before the date of a meeting and an admittance card must be issued in the shareholder's name, as provided in §12 of the Articles of Incorporation. Any shareholder can elect to be represented by a third party at an Annual General Meeting.

The Articles of Incorporation contain no restrictions on the exercise of voting rights, and the only quorum requirements are those stipulated in §16, in conformity with the Swiss Code of Obligations.

Under §10.2 of the Articles of Incorporation, shareholders representing shares with a nominal value of at least CHF 1 million can request the placement of items on the agenda of an Annual General Meeting. This must be done no later than 28 days before the date of the meeting.

The rules on the issue of instructions to the independent proxy and rules on the electronic participation in the AGM are laid down in the corresponding invitation to the AGM and are not regulated in the Articles of Incorporation.

Dr Andreas Oeri, Chairman of the Corporate Governance and Sustainability Committee.



<sup>15</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

## Change of control and defensive measures

The Articles of Incorporation contain no provisions on the mandatory bid rule. Swiss law applies.

There are no change-of-control clauses. Those components of remuneration based on Roche NES

would be terminated in the event of an acquisition, and vesting period restrictions on pre-existing awards would be removed, so that all such options could be exercised immediately.

which go beyond the legal requirements, and other attestation services, comfort letters, consents and consultation.

Tax services include services with respect to compliance, tax returns and tax advice except those services related to the audit of tax.

Other services include advice relating to process improvements, regulations and trainings.

The company has a formal policy governing the engagement of the statutory auditor for non-audit services. The policy prohibits certain services from being provided but permits certain other services up to limits agreed by the Audit Committee. Each potential non-audit service engagement is reviewed against this policy before any authority to proceed is given.

## Relationship to statutory auditors

At the Annual General Meeting of Roche Holding Ltd on 3 March 2015, the shareholders voted to appoint KPMG AG (KPMG) as statutory auditors. Based on the existing legal requirements of the Swiss Code of Obligations (Article 730a) concerning the maximum term of office of seven years of the auditor in charge, Ian Starkey replaced his predecessor John Morris as auditor-in-charge starting with the business year 2011 (information on how long the auditors and auditor-in-charge have been serving in these capacities is provided on page 142). The statutory auditors participate in Audit Committee meetings. They prepare written and oral reports on the results of their audits. The Audit Committee oversees and assesses the auditors and makes recommendations to the Board (for information on the authorities and responsibilities of the Audit Committee, see Article 8.1 of the Bylaws<sup>16</sup>). The statutory auditors participated in 5 meetings of the Audit Committee in 2015.

The reports of statutory auditor on the Consolidated Financial Statements and on the Financial Statements can be found on pages 126 and 149, respectively, of this year's Finance Report.

KPMG received the following remuneration for their services as statutory auditors of Roche Holding Ltd and as the auditors of other Roche companies (including Chugai):

	2015	2014
	(millions of CHF)	
Auditing services	21.1	20.5
Audit-related services		
– Accounting	–	–
– Assurance	0.8	1.3
Tax services	1.3	1.2
Other services	1.7	0.7
<b>Total</b>	<b>24.9</b>	<b>23.7</b>

The statutory auditors are elected each year by the Annual General Meeting.

Auditing services are provided as legally required.

Audit-related services include assurance and accounting services provided by auditors but which are not necessarily provided by the statutory auditor. These services include audits of pension funds and employee benefit plans, internal control reviews

## Relationship to the independent proxy

In recent years, BDO AG served as the independent proxy and at the Annual General Meeting on 3 March 2015, shareholders elected BDO AG as the independent proxy for the period from 2015 until the conclusion of the 2016 ordinary Annual General Meeting of Shareholders. BDO AG was paid in 2015 for its services according to expenditure totalling CHF 17,010 (2014: CHF 22,421).

The rules on the issue of instructions to the independent proxy and rules on the electronic participation in the AGM are laid down in the corresponding invitation to the AGM and are not regulated in the Articles of Incorporation.

<sup>16</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

## Information policy

As provided by §34 of the Articles of Incorporation<sup>17</sup>, corporate notices are published in the Swiss Official Gazette of Commerce and in other daily newspapers designated by the Board of Directors (Basler Zeitung, Finanz und Wirtschaft, L'Agefi, Le Temps, Neue Zürcher Zeitung).

Roche reports its half-year and full-year results in business reports (published in print and/or online formats) and at media events. In addition, detailed first- and third-quarter sales figures are published each year in April and October. The most current list of publication dates is available in English and German on the Internet.<sup>18</sup>

All relevant information and documents, including all media releases, investor updates<sup>19</sup> and presentations to analyst and investor conferences are available on the Internet. Further publications can be ordered by e-mail, fax or telephone:

basel.webmaster@roche.com  
tel. +41 (0)61 688 30 61  
fax +41 (0)61 688 41 96

The contact address for Investor Relations is:  
F. Hoffmann-La Roche Ltd, Investor Relations,  
Group Finance, 4070 Basel, Switzerland  
tel. +41 (0)61 688 88 80  
fax +41 (0)61 691 00 14

Additional information, including details on specific contact persons, is available on the Internet.<sup>20</sup>

## Chief Compliance Officer and Compliance Officers network

The Chief Compliance Officer with his Compliance Officers network is committed to ensuring that the Roche Group Code of Conduct<sup>21</sup> is consistently complied with throughout the Roche Group. He also serves as a contact person for shareholders, employees, customers, suppliers and the general public on issues relating to the implementation of and compliance with this Code. Employees and other parties who become aware of violations of the Roche Group Code of Conduct can bring them to the attention of their managers or supervisors, to the local compliance officer or report them to the Chief Compliance Officer (Urs Jaisli, direct phone number: +41 (0)61 688 40 18, e-mail: [urs.jaisli@roche.com](mailto:urs.jaisli@roche.com)). Such disclosures will be treated confidentially. In addition, as of the end of 2009, employees may anonymously report irregularities or complaints in their mother tongue via a 'SpeakUp Line'. Starting in December 2013, a new compliance tool on Group level, the so-called Roche Group Code of Conduct Help & Advice Line, was introduced which strives to provide guidance in case of questions or uncertainties about the interpretation of the Roche

Group Code of Conduct and its reference documents. It furthermore will serve as a platform for ideas and suggestions concerning those documents.

In addition, Roche has established a Business Ethics Incident Reporting (BEIR) system which enables the Chief Compliance Officer to capture, track and monitor alleged violations, from initial reports by local Compliance Officers through to resolution. Business ethics incidents are recorded in the system when the local management receives specific and concrete information about an alleged violation of the Roche Group Code of Conduct in one of certain pre-defined categories.<sup>22</sup> The Corporate Governance and Sustainability Committee and the Audit Committee of the Board of Directors are informed of substantial violations and management's corrective actions made.

The Chief Compliance Officer reports to the General Counsel and also submits regular reports to the Corporate Governance and Sustainability Committee and to the Audit Committee of the Board of Directors.

## Non-applicability/negative disclosure

It is expressly noted that any information not contained or mentioned herein is either non-applicable or its omission is to be construed as a negative declaration

(as provided in the SIX Swiss Exchange Corporate Governance Directive and the Commentary thereto).

<sup>17</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

<sup>18</sup> [www.roche.com/media](http://www.roche.com/media)

<sup>19</sup> [www.roche.com/investors](http://www.roche.com/investors)

<sup>20</sup> [www.roche.com/investors/contacts](http://www.roche.com/investors/contacts)

<sup>21</sup> [www.roche.com/code\\_of\\_conduct](http://www.roche.com/code_of_conduct)

<sup>22</sup> [www.roche.com/risk\\_management\\_and\\_compliance](http://www.roche.com/risk_management_and_compliance)

# Remuneration Report

*Roche is committed to a compensation system that is balanced and performance-oriented, and that aligns the interests of employees and owners of the company.*

71%

*of our employees  
are satisfied with their benefits\**

\* According to the Global Employee Opinion Survey 2014.

## 1. Principles

Roche's success depends substantially on the expertise, motivation and performance of its employees. This conviction forms the basis of our compensation policy.

Roche aims to remunerate all employees fairly, transparently and in line with market conditions, enabling them to participate appropriately in the company's success. We pursue this goal by providing competitive, performance-based compensation.

We strive for a balanced mix of fixed and variable compensation components geared to each employee's position and management responsibility.

The variable components are intended to create additional financial incentives to achieve corporate goals and to keep innovation at a consistently high level while increasing the value that the company creates for all stakeholder groups. At the same time, in order to allow employees and managers to participate in the company's business success, adequate compensation measures are key. These incentives take the form of annual bonus payments and long-term share-based programmes.

For a global company like Roche, market-competitive remuneration plays a key role along with a performance-based, transparent compensation structure. To ensure

that compensation packages are competitive, both the structure and individual components are regularly benchmarked against Swiss, European and international criteria. Our remuneration guidelines and their underlying principles are also subject to regular outside comparisons.

However, compensation policy is only one factor in safeguarding Roche's future success (see [www.roche.com/rewards](http://www.roche.com/rewards)). Another key element is a corporate culture that offers employees conditions in which they can make their best possible contribution to the shared corporate goal of improving healthcare to patients. This includes a sound value system that is based on integrity, courage and passion (see [www.roche.com/living\\_our\\_values](http://www.roche.com/living_our_values)). At the same time, our decentralised management approach plays a major role with its wide scope for individual decision-making, respectful interactions, openness to diversity, wide-ranging training and development opportunities and an attractive working environment. An employee's motivation and loyalty to an organisation is not solely based on the terms of compensation.

Roche is committed to a fair, balanced and performance-based compensation policy that links employees' interests with those of various stakeholder groups.



## 2. Remuneration decision process and approval framework

### 2.1 Overview

Each year the Remuneration Committee of Roche's Board of Directors meets at least twice and decides the remuneration of Board members and the members of the Group's Corporate Executive Committee. The terms of Performance Share Plan (PSP) awards are decided annually by the Board of Directors, acting

upon recommendations from the Remuneration Committee.

The Remuneration Committee tracks market data on salaries at other leading global pharmaceuticals companies<sup>1</sup> and at major Swiss companies<sup>2</sup> and reports its findings to the full Board. The external

consulting firm PricewaterhouseCoopers (PwC) assists Roche in performing market comparisons and in advising the Remuneration Committee. Information on the Remuneration Committee's remit, powers and procedures for making remuneration decisions can be found in the Bylaws of the Roche Board of Directors<sup>3</sup> and in the Articles of Incorporation<sup>4</sup>. They are also outlined in the sections below on the principles governing specific remuneration components (see 3.).

Since 2014, total aggregate amounts which are based on these decisions are submitted to the General

Meeting for approval implementing the 'Ordinance against excessive compensation in listed corporations' (Verordnung gegen übermässige Vergütungen bei börsenkotierten Aktiengesellschaften [VegüV]). The General Meeting shall vote annually and with binding effect on the approval of the remuneration (that the Board of Directors has resolved) of the Board of Directors and the Corporate Executive Committee (for details see 4. and 5.).

**Remuneration decision process and approval framework**

Remuneration components	Beneficiary		Decision by	Approval by
Base pay/remuneration	Board of Directors (BoD) Chairman (C)	Corporate Executive Committee (CEC) CEO	Remuneration Committee	Annual General Meeting
Bonus	✓ ✓ (C only)	✓ ✓		
Stock-settled Stock Appreciation Rights	-	✓		
Restricted Stock Units	-	✓		
Performance Share Plan	-	✓		
Decisions on pension	✓ (C only)	✓	Board of Directors upon recommendation from Remuneration Committee Remuneration Committee	

**Peer set for 2015**

Abbott Laboratories  
AbbVie  
Amgen  
Astellas  
AstraZeneca  
Bayer  
Bristol-Myers Squibb  
Eli Lilly  
GlaxoSmithKline  
Johnson & Johnson  
Merck & Co.  
Novartis  
Pfizer  
Sanofi  
Takeda

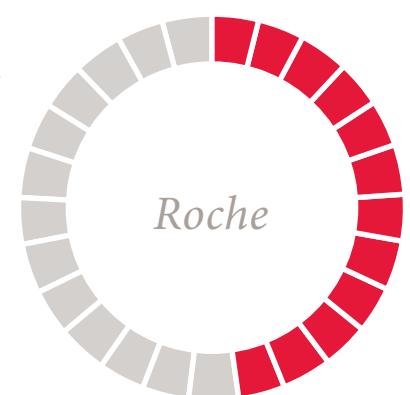


ABB  
Actelion  
Credit Suisse  
LafargeHolcim  
Nestlé  
Nobel Biocare  
Sonova  
Straumann  
Swiss Re  
UBS  
Zurich Insurance

**Peer set for 2015**

<sup>1</sup> Peer set for 2015: Abbott Laboratories, AbbVie, Amgen, Astellas, AstraZeneca, Bayer, Bristol-Myers Squibb, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Merck & Co., Novartis, Pfizer, Sanofi, Takeda (no change in composition of peer set compared to 2014).

<sup>2</sup> ABB, Actelion, Credit Suisse, LafargeHolcim, Nestlé, Nobel Biocare, Sonova, Straumann, Swiss Re, UBS, Zurich Insurance.

<sup>3</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

<sup>4</sup> [www.roche.com/article\\_of\\_incorporation](http://www.roche.com/article_of_incorporation)

## **2.2 Procedure for submitting total Board and Executive remuneration for shareholder approval at the Annual General Meeting**

Each year at the Annual General Meeting (AGM) shareholders approve the total remuneration for the Board of Directors and for the Corporate Executive Committee as decided by the Board of Directors' Remuneration Committee and the Board of Directors respectively.

According to the approval at the AGM 2014, Roche has committed itself to obtaining separate and binding shareholder approvals of the total remuneration paid to the Board of Directors and to the Corporate Executive Committee as follows.

### **Retrospective approval**

Total aggregate bonus amounts for the Corporate Executive Committee and the Chairman of the Board of Directors for the financial year just ended will be submitted retrospectively at each ordinary AGM for separate and binding approval.

### **Prospective approval**

All other Board and Executive aggregate remuneration will be submitted prospectively to the AGM for separate and binding approval for the period between two ordinary AGMs.

### **Approval of total remuneration at Annual General Meeting 2016**

#### *Retrospective:*

Chairman of the BoD (C):

- Bonus for financial year 2015 (total amount)

Corporate Executive Committee (CEC):

- Bonus for financial year 2015 (total amount)

#### *Prospective:*

Board of Directors (BoD) including C:

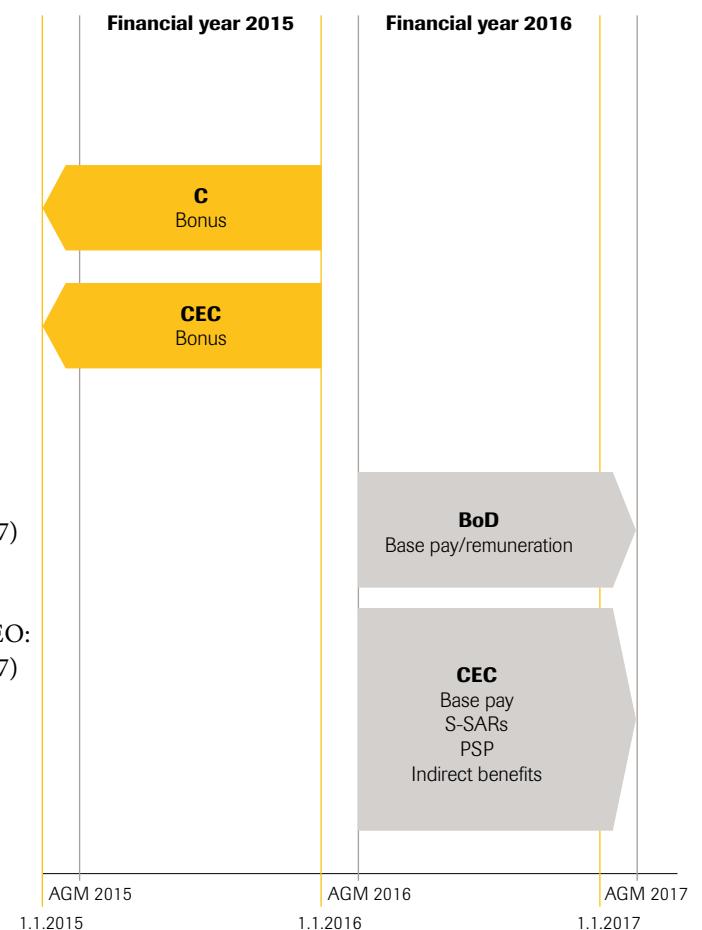
Aggregate total remuneration (AGM 2016–AGM 2017)

- Base pay/remuneration

Corporate Executive Committee (CEC) including CEO:

Aggregate total remuneration (AGM 2016–AGM 2017)

- Base pay
- Stock-settled Stock Appreciation Rights (S-SARs)
- Performance Share Plan (PSP)
- Indirect benefits



Mr André Hoffmann, Chairman of the Remuneration Committee.



## 3. Remuneration components

### 3.1 Overview of remuneration elements

Remuneration to the members of the Board of Directors and the Corporate Executive Committee are composed of the following elements.

The fixed base salary is complemented with the annual variable bonus as **Short-Term Incentive (STI)** and with perennial variable remuneration elements (S-SARs, PSP, RSUs) as **Long-Term Incentive (LTI)**.

The remuneration components are linked to the employees' performance, our company's financial performance and commercial success and thus

align the interests of Roche and its employees with those of shareholders.

The LTI remuneration components are intended to sustainably and homogenously and long-term oriented align management's interest with those of shareholders and holders of non-voting equity securities and to give participating managers an additional incentive to achieve continued value growth in the form of long-term total shareholder returns. By creating value for Roche investors, management benefits as well. When no added long-term value is created for investors, management is 'penalised' by receiving less.

#### Composition of remuneration to the Board of Directors and the Corporate Executive Committee

Annual remuneration elements	Description	C	BoD	CEO	CEC
<b>Base pay/ remuneration</b>	Monthly payment (see 3.1.1 below)	✓	✓ Quarterly payments	✓	✓
<b>Bonus</b>	Annual payment (see 3.1.2 below)	✓ For 10 years blocked shares	-	✓ For 10 years blocked shares	✓ Cash
<b>Pensions etc.</b>	(see 3.1.6 below)	✓	-	✓	✓
Perennial remuneration elements					
<b>Stock-settled Stock Appreciation Rights (S-SARs)</b>	(see 3.1.3 below)	-	-	✓	✓
<b>Performance Share Plan (PSP)</b>	(see 3.1.5 below)	-	-	✓ For 10 years blocked shares	✓
<b>Restricted Stock Units (RSUs)</b>	(see 3.1.4 below)	-	-	Per 2016 replaced by S-SARs/PSP	Per 2016 replaced by S-SARs/PSP

## Variable

### STI:

- Bonus

### LTI:

- Stock-settled Stock Appreciation Rights
- Performance Share Plan
- Restricted Stock Units



Base salary

- Indirect benefits (employer contribution):
- Pensions and insurance contributions
  - AHV/IV/ALV
  - Roche Connect
  - Tax consulting services

Expense allowances

- Others:
- Children's schooling costs
  - Foreign tax obligation

## Fixed

qualitative individual or functional performance objectives. For competitive reasons, Roche does not disclose the individual performance objectives of members of its Corporate Executive Committee.

In December at the end of a reporting year or in January following a reporting year the Remuneration Committee decides on the bonuses and their amounts payable to the Chairman of the Board and the members of the Corporate Executive Committee in respect of the current reporting year, based on performance against the aforementioned objectives. At the same time the Remuneration Committee also decides in what form bonuses will be awarded, i.e. cash payments and/or blocked non-voting equity securities and/or blocked shares.

### 3.1.1 Base pay (fixed)

Base pay (cash payment) is determined for each position based on salary market data of other leading global pharmaceuticals companies (see footnote 1) and of other major Swiss companies (see footnote 2) and reflects individuals' abilities, experience and performance over time. Pay adjustments are likewise linked to individual performance and take into account prevailing market conditions and the company's overall financial situation.

The Remuneration Committee makes and reviews the final decision on the individual base pay paid to the Chairman of the Board of Directors and members of the Corporate Executive Committee and on the remuneration of the other members of the Board.

### 3.1.2 Bonuses (variable)

Bonuses are annually awarded for individual contributions of value creation in a business year and are meant to be an incentive to strive for outstanding results and to create new business opportunities. Bonus amounts are linked to Group and divisional profits, sales growth, Operating Profit After Capital Charge (OPAC), earnings per share and Non-voting Equity Security (NES) growth, product development pipeline and to the achievement of measurable and

### 3.1.3 Stock-settled Stock Appreciation Rights (variable)

A Stock-settled Stock Appreciation Rights (S-SARs) plan was introduced in 2005 establishing a uniform system of remuneration throughout Roche. S-SARs entitle holders to benefit financially from any increase in the value of Roche's non-voting equity securities between the grant date and the exercise date. As of 2012 S-SARs granted to CEC members all vest together after three years and then have to be exercised within

seven years of the grant date. Unexercised S-SARs lapse without compensation. Since 2012, the fair value of S-SARs has been calculated at the grant date using the trinomial model for American options (for details see page 180).

S-SAR awards are allocated individually at the Remuneration Committee's discretion.

#### **3.1.4 Restricted Stock Units (variable)**

Restricted Stock Units (RSUs)—rights to receive non-voting equity securities and/or shares after a three-year vesting period plus a value adjustment (being the amount equivalent to the sum of the dividend paid during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted)—were introduced in 2013 as a new remuneration component partially replacing S-SARs. RSU awards are allocated individually at the Remuneration Committee's discretion and will be vested to the recipient after three years only. Thereafter, resulting non-voting equity securities may remain blocked for up to 10 years. With the vesting and blocking periods the interests of the RSU recipients shall be aligned with the company's long-term success and the commitment of employees to the company shall be increased.

In 2013, the value of S-SAR awards was reduced to 65% and the 35% balance is awarded in form of RSUs.

In 2016, RSUs as remuneration component for the Corporate Executive Committee will be replaced by awarding of corresponding PSPs. Therefore, the variable long-term incentive programmes for the Corporate Executive Committee will comprise PSP awards and S-SARs, 50% each.

RSUs as a remuneration component will be continued for all other authorised Roche employees.

#### **3.1.5 Performance Share Plan (PSP), (variable)**

The members of the Corporate Executive Committee and other members of senior management (currently some 150 individuals worldwide) participate in the Performance Share Plan. The PSP was established in 2002 for periods of three years each and is based on a three-year comparison of the Total Shareholder Return (TSR) with 15 peer companies (see footnote 1).

In a respective year, the PSP consists of three overlapping performance cycles, with a new cycle starting at the beginning of each year and a cycle finishing at the end of each year.

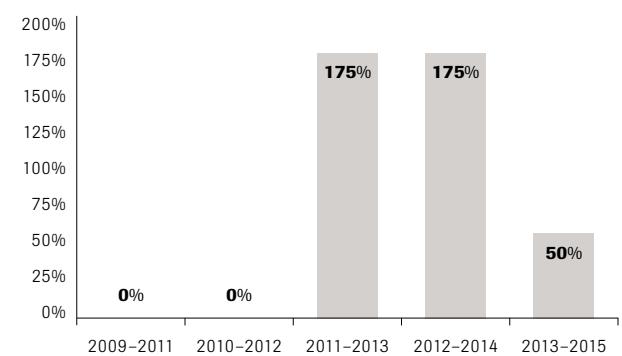
In 2015, there were the three overlapping performance cycles PSP 2013–2015, PSP 2014–2016 and PSP 2015–2017, of which PSP 2013–2015 closed on 31 December 2015.

For the PSP cycle 2013–2015 50% of the targeted NES will be awarded (PSP 2012–2014 per 31 December 2014: 175% of the targeted NES were awarded).

The plan's key performance metric for an award, the Total Shareholder Return (TSR), is calculated as a three-month moving average rate before the start of and before the end of the performance cycle.

The payment of the Performance Share Plan is determined by the Board of Directors on an annual basis, acting upon recommendations from the Remuneration Committee.

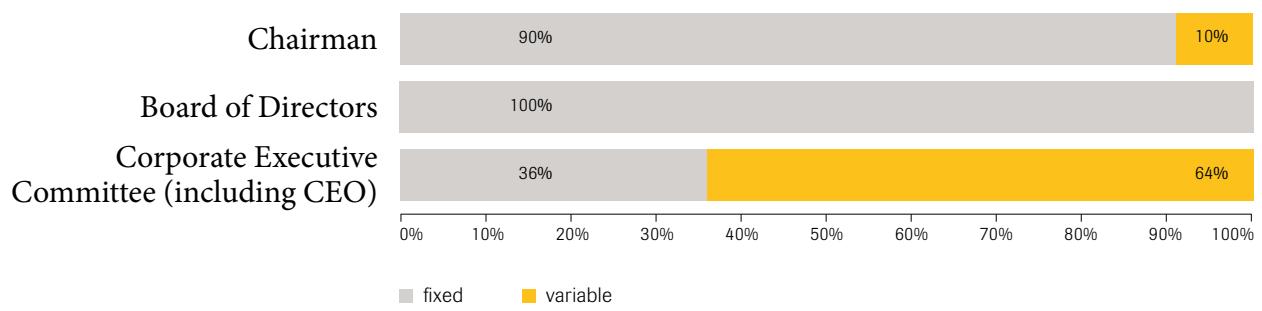
#### **PSP historical performance** (% of award of originally targeted NES)



#### **3.1.6 Indirect benefits**

As shown in 5.9 (5.3 [for the CEO] and 4.3 [for the chairman] respectively), Members of the Corporate Executive Committee additionally received indirect benefits (payments in pension funds, MGB [Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung als Ergänzung der beruflichen Vorsorge, i.e. employee profit-sharing foundation supplementing occupational pension benefits], insurances, Roche Connect [see 5.9], payments for foreign tax obligation and tax consulting services and annual expense allowances) and as shown under 5.10 individual members of the Corporate Executive Committee received payments for schooling costs for their children.

#### **3.2 Weighting (fixed/variable) of 2015 remuneration components (at target and as percentage of total remuneration in 2015)**



### 3.3 Ratio of variable remuneration components relative to fixed base pay of the Corporate Executive Committee 2015

**Ratio of variable remuneration components (bonuses, S-SARs/RSUs and PSP) relative to % of value of fixed base pay**

	<b>STI</b>		<b>LTI</b>	
	<b>Bonus</b>	<b>S-SARs/RSUs</b>	<b>PSP</b>	
Criteria				
Individual <b>target value*</b>	≤100%	65% S-SARs 35% RSUs	33.33%**	
<b>Minimum</b>	0%	0%	0%	
<b>Maximum</b>	200%	150%	66.66%	
<b>Performance criteria</b>	Group objectives (Group and divisional business performance) and individual objectives considering profit, sales growth, OPAC (Operating Profit After Capital Charge), earnings per share and NES growth, product development pipeline	Value development determined by performance (plus a value adjustment for dividends) of NES after grant	Value development determined by performance (starting with PSP 2013–2015 cycle plus a value adjustment for dividends) of NES/bearer shares after grant. Group performance of TSR in relation to TSR performance of peer set (TSR definition see 5.8)	
<b>Split in %</b>				
a) Group objectives	70%	n.a.	100%	
b) Individual objectives	30%	n.a.	-	

\* Assessed in consideration of the performance of competitors and the macro-economic development.

\*\* Based on annual base pay measured at 1 January of first year of cycle.

### 3.4 Changes with respect to the remuneration components

As of 2015, the calculation of the PSP values for a corresponding reporting year will be newly based on the fair value at grant (bearer share prices averaged over the three months [October to December 2014] prior to the start of the performance cycle 2015–2017) calculated per the target amount of Roche securities over an entire PSP three years' cycle with no distribution to one year. This is instead of the former calculation of all three cycles and corresponding distribution to the reporting year (i.e. 2 cycles disclosed at target, with the remaining cycle of the PSP based on the actual value of PSP vesting in the year).

In 2016, RSUs for the Corporate Executive Committee will be replaced by awarding of additional PSPs. Therefore, in future the long-term incentive programmes for the Corporate Executive Committee

will comprise PSP and S-SARs awards, 50% each. With this, the structure of the LTI is simplified and in comparison with competitors, the company's performance which is reflected in the share price and the Total Shareholder Return shall be incorporated much more deeply in the Corporate Executive Committee's remuneration.

Starting in 2016, PSP awards as a remuneration component will be reserved for the Corporate Executive Committee and the Enlarged Corporate Executive Committee. As of 2016, the long-term incentive programmes for the other previous PSP participants will comprise S-SARs and RSUs awards, 50% each.

For all further details please refer to the following sections of this Remuneration Report<sup>5</sup>.

<sup>5</sup> See also in the Finance Report, Note 30 to the Roche Group Consolidated Financial Statements ('Related parties', page 110) and Note 6 to the Financial Statements of Roche Holding Ltd ('Board and Executive shareholdings', page 145).

## 4. Remuneration of the Board of Directors

### 4.1 Resolution and approval

Remuneration of the Chairman of the Board of Directors and of members of the Board of Directors was decided at the Remuneration Committee's discretion, taking into account market comparisons.

The remuneration is in form of cash payments and is annually tracked against market data on directors' pay at other leading global pharmaceuticals companies (see footnote 1) and other major Swiss companies (see footnote 2) which is assisted by the consultancy of PwC.

As in the previous year, in 2016, the Board of Directors will separately submit the total aggregate bonus of the Chairman of the Board of Directors to the General Meeting for the 2015 financial year for retrospectively binding approval.

The maximum amounts of the total aggregate remuneration of the Board of Directors for the period between the ordinary General Meeting 2016 and the ordinary General Meeting 2017 will be tabled in 2016 as in the previous year for the General Meeting's prospectively binding approval (see 2.2).

### 4.2 Amount of remuneration to the members of the Board of Directors

In 2015, the members of the Board of Directors<sup>6</sup> received remuneration and additional compensation in form of quarterly fixed cash payments as shown

in the 'Remuneration of members of the Board of Directors 2015' table on page 171 for their Board activities. Roche paid legally required employer's contributions of total CHF 166,720 (2014: CHF 155,431) to Swiss social security programmes providing retirement, disability and unemployment benefits (AHV/IV/ALV) for the members of the Board of Directors beside the legally required contributions separately stated for the Chairman of the Board of Directors.

The basic remuneration of the Board of Directors (excluding the Chairman) has remained unchanged since 2001 and remuneration of all members of the Board of Directors will again remain unchanged for 2016.

With the exception of the Chairman of the Board of Directors (bonus in form of blocked shares) and Severin Schwan as an executive member of the Board, members of the Board of Directors were not awarded any shares, non-voting equity securities, S-SARs or RSUs.

There are no loans or credits granted to the members of the Board of Directors.

AUDITED

In his capacity as a member of the International Advisory Council (IAC) of Chugai Pharmaceutical Co., Ltd. André Hoffmann received honoraria amounting to a total of USD 25,000 (CHF 24,065).

### Remuneration of members of the Board of Directors 2015 (in CHF)

	Basic remuneration	Additional compensation for committee members/chairs <sup>7</sup>	Additional special compensation	Total remuneration
Ch. Franz, Chairman			(see '4.3 Total remuneration paid to the Chairman of the Board of Directors')	
A. Hoffmann, Vice-Chairman	400,000 <sup>8</sup>	-	24,065 (see page 170)	424,065
P. Baschera	300,000	30,000	-	330,000
J. Bell	300,000	30,000	-	330,000
P. Bulcke	300,000	30,000	-	330,000
D. Julius	300,000	60,000	-	360,000
R.P. Lifton	250,000 <sup>9</sup>	-	-	250,000
B. Poussot	250,000 <sup>9</sup>	30,000	-	280,000
A. Oeri	300,000	60,000	-	360,000
S. Schwan			(See '5.3 Highest total remuneration paid to Severin Schwan as a member of the Corporate Executive Committee', remuneration received in his primary function as CEO and reflected in total remuneration for the Corporate Executive Committee)	
P.R. Voser	300,000	30,000	-	330,000
B. Weder di Mauro	300,000	30,000	-	330,000
<b>Total<sup>10</sup></b>	<b>3,000,000</b>	<b>300,000</b>	<b>24,065</b>	<b>3,324,065</b>

7 With the exception of members of the Presidium (Chairman, Vice-Chairman) Board members receive CHF 30,000/year for each committee they serve on and CHF 60,000/year for each committee they chair.

8 Remuneration for serving as Vice-Chairman of the Board.

9 Prorated remuneration for the period from March to December 2015.

10 Additionally employer contribution to AHV/IV/ALV totalling CHF 398,324 (including the Chairman) was paid that does not form part of compensation.

AUDITED

6 For a list of members, their positions and their committee memberships and chairmanships see page 141.

<b>Remuneration of members of the Board of Directors 2014 (in CHF)</b>				
	Basic Remuneration	Additional compensation for committee members/chairs <sup>7</sup>	Additional special compensation	<b>Total remuneration</b>
<b>(see '4.3 Total remuneration paid to the Chairman of the Board of Directors')</b>				
Ch. Franz, Chairman	400,000 <sup>8</sup>	–	18,298	418,298
A. Hoffmann, Vice-Chairman	300,000	30,000	–	330,000
P. Baschera	300,000	30,000	–	330,000
J. Bell	300,000	30,000	–	330,000
P. Bulcke	300,000	30,000	–	330,000
D. Julius	300,000	60,000	–	360,000
R.P. Lifton	n.a.	n.a.	n.a.	n.a.
B. Poussot	n.a.	n.a.	n.a.	n.a.
A. Oeri	300,000	60,000	–	360,000
S. Schwan	(See '5.3 Highest total remuneration paid to Severin Schwan as a member of the Corporate Executive Committee', remuneration received in his primary function as CEO and reflected in total remuneration for the Corporate Executive Committee)			
P.R. Voser	300,000	30,000	–	330,000
B. Weder di Mauro	300,000	30,000	–	330,000
Franz B. Humer (retired in 2014)	3,853,045 <sup>11</sup>	–	3,137,418 <sup>12</sup>	6,990,463
W.M. Burns (retired in 2014)	75,000 <sup>13</sup>	–	18,298	93,298
A.D. Levinson (retired in 2014)	225,000 <sup>14</sup>	22,500 <sup>14</sup>	114,236	361,736
<b>Total</b>	<b>6,653,045</b>	<b>292,500</b>	<b>3,288,250</b>	<b>7,096,377<sup>15,16</sup></b>

<sup>11</sup> Prorated remuneration for serving as Chairman of the Board for the period January to March 2014 amounting to CHF 1,000,000, bonus award of CHF 2,791,950 (in form of shares blocked for 10 years [calculation of number of shares based on the share price at the date of transfer in April 2015], calculation of value in consideration of reduction of value due to blocking period of 10 years [reduced market value: 55.839%]), employer contributions to employee stock purchase plan Roche Connect (prorated for the period January to March 2014) amounting to CHF 18,750, payments for tax consulting services (CHF 34,214) plus prorated remuneration Pension funds/MGB (Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung [employee profit-sharing foundation supplementing occupational pension benefits]) of CHF 939. Additionally, employer contribution to AHV/IV/ALV of CHF 1,152,438 (2013: CHF 379,434) was paid that does not form part of compensation.

<sup>12</sup> Franz B. Humer received in his advisory capacity to the Presidium (planned for 5 years) CHF 3,000,000. The total amount was paid in 2014. Franz B. Humer received honoraria amounting to a total of USD 150,200 (CHF 137,418) for serving as a member of the International Advisory Council (IAC) and as a member of the Board of Directors of Chugai Pharmaceutical Co., Ltd. starting 1 April 2014.

<sup>13</sup> Prorated remuneration for the period January to March 2014.

<sup>14</sup> Prorated remuneration for the period January to September 2014.

<sup>15</sup> Without amount of footnote 12, since no activity as a member of the Board.

<sup>16</sup> Additionally, employer contribution to AHV/IV/ALV totalling CHF 1,495,453 (including the Chairman) was paid that does not form part of compensation.

#### **4.3 Total remuneration paid to the Chairman of the Board of Directors**

As Chairman, Christoph Franz received total remuneration for 2015 as shown below. The Remuneration Committee's bonus proposal (adopted in late 2015) in respect of the 2015 financial year (in

form of bearer shares blocked for 10 years, payable in April 2016) will be put for shareholder binding vote at the 2016 ordinary Annual General Meeting (AGM).

The Chairman's total remuneration is contained in the total remuneration of the Board of Directors in 4.4.

#### **Total remuneration paid to the Chairman of the Board of Directors (in CHF)**

	2015	2014
Base salary (in cash)	3,500,000	3,408,340*
Bonus (subject to approval of the Annual General Meeting 2016)	558,390**	558,390**
Pension funds/MGB <sup>17</sup> /insurances/annual expense allowances	1,656,388***	68,047***
<b>Total</b>	<b>5,714,778<sup>18</sup></b>	<b>4,034,777</b>

\* Prorated remuneration as member of the Board of Directors for the period March to December 2014 and as Chairman of the Board of Directors for the period March to December 2014.

\*\* In form of shares blocked for 10 years (calculation of number of shares based on the share price at the date of transfer in April 2015 and 2016 respectively after approval at the AGM 2015/AGM 2016), calculation of value in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%) as approved at the AGM 2015/to be submitted for shareholder approval at the AGM 2016.

\*\*\* Including employer contribution of social securities' beneficial parts.

#### **4.4 Total remuneration paid to the Board of Directors**

For the 2015 calendar year the members of the Board of Directors received remuneration including bonuses totalling CHF 9,038,843 (2014: CHF 11,131,154), excluding additional employer's contribution paid to AHV/IV/ALV totalling CHF 398,324 (2014: CHF 1,495,453) that does not form part of compensation.

#### **4.5 Remuneration paid to the former members of the Board of Directors**

Former member of the Board of Directors Franz B. Humer in 2015 received honoraria amounting to a total of USD 200,000 (CHF 192,516) for serving as

a member of the Board of Directors and as a member of the International Advisory Council (IAC) of Chugai Pharmaceutical Co., Ltd. In addition CHF 146,699 employer's contribution was paid to AHV/IV/ALV and CHF 32,281 for tax consulting services were paid for the last time.

Former member of the Board of Directors William M. Burns in 2015 received honoraria amounting to a total of USD 25,000 (CHF 24,065) in his capacity as a member of the International Advisory Council (IAC) of Chugai Pharmaceutical Co., Ltd.

No additional remuneration was paid.

<sup>17</sup> MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

<sup>18</sup> Additionally, employer contribution to AHV/IV/ALV of CHF 231,604 (2014: CHF 187,584) was paid that does not form part of compensation.

#### **4.6 Board remuneration subject to approval at the Annual General Meeting**

##### **4.6.1 Submission of the Chairman's total aggregate bonus for a binding vote at the Annual General Meeting**

Remuneration to the Chairman of the Board of Directors includes a bonus award of CHF 558,390 in form of shares blocked for 10 years as shown in

the table '4.3 Total remuneration paid to the Chairman of the Board of Directors' on page 173. The Board of Directors will submit the Remuneration Committee's bonus proposal (adopted in late 2015) for the Chairman of the Board, Christoph Franz, in respect of the 2015 financial year (payable in April 2016, excluding legally required employer's contributions to AHV/IV/ALV) for the shareholder binding vote to the 2016 ordinary Annual General Meeting (AGM).

##### **Retrospective approvals of the Chairman's total aggregate bonus (in CHF)\***

	Proposal AGM 2016	AGM 2015	AGM 2014
Total aggregate amount proposal for approval/ approved by the AGM	Aggregate amount for financial year 2015	Aggregate amount for financial year 2014	Aggregate amount for financial year 2013
<b>558,390**</b>	<b>3,350,340***</b>	<b>2,791,950***</b>	

\* Excluding legally required employer's contributions to AHV/IV/ALV.

\*\* Bonus award (in form of shares blocked for 10 years [calculation of number of shares based on the share price at the date of transfer in April 2016 after approval at the AGM 2016], calculation of value in consideration of reduction of value due to blocking period of 10 years [reduced market value: 55.839%] to be submitted for shareholder approval at the AGM 2016).

\*\*\* Includes Franz B. Humer's bonus as the former Chairman.

#### **4.6.2 Submission of the Board's total aggregate future remuneration for a binding shareholder vote**

The Board of Directors proposes that the 2016 ordinary AGM approve Board remuneration totalling not more than CHF 10,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2017 ordinary AGM.

Severin Schwan's remuneration as shown in 5.3 which he receives in his function as CEO and member of the Corporate Executive Committee is not included here but is part of the Corporate Executive Committee's total remuneration.

##### **Prospective approvals of the Board's total aggregate future remuneration (in CHF)\***

	Proposal AGM 2016	AGM 2015	AGM 2014
Total aggregate amount proposal for approval/ approved by the AGM	Aggregate amount for the period AGM 2016–AGM 2017	Aggregate amount for the period AGM 2015–AGM 2016	Aggregate amount for the period AGM 2014–AGM 2015
<b>10,000,000</b>	<b>10,000,000</b>	<b>10,000,000</b>	<b>11,000,000</b>

\* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses.

#### **4.6.3 Reconciliation of the reported remuneration with the shareholders' approved remuneration for the members of the Board of Directors**

The 2014 ordinary AGM approved Board remuneration totalling not more than CHF 11,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2015 ordinary AGM.

For comparison from 2014 ordinary AGM to ordinary 2015 AGM actual remuneration amounted to CHF 10,364,027, (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses).

##### **Prospectively approved total remuneration for the members of the Board of Directors in comparison to the actual total payments made (in CHF)\***

	Total remuneration for the period AGM 2015–AGM 2016	Total remuneration for the period AGM 2014–AGM 2015	Total remuneration for the period AGM 2013–AGM 2014
Maximum of total remuneration approved by the AGM	10,000,000	11,000,000	Approval not yet required
Actual total remuneration paid	Calculation at end of period	10,364,027	10,046,691
Within the approved limit	Calculation at end of period	Yes	-

\* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses.

#### 4.7 Security holdings

Directors André Hoffmann and Andreas Oeri and members of the founders' families who are closely associated with them belong to a contractually bound shareholder group with pooled voting rights. At the end of 2015 this group held 72,018,000 shares (45.01% of issued shares). Detailed information about this group can be found in the Finance Report, Note 30 to the Roche Group Consolidated Financial Statements

('Related parties', page 110) and in Note 4 to the Financial Statements of Roche Holding Ltd ('Significant shareholders', page 144). In addition, as at 31 December 2015 (as at 31 December 2014, respectively) the members of the Board of Directors and persons closely associated with them held shares and Non-voting Equity Securities (NES) as shown in the table 'Security holdings' below.

#### Security holdings (shares and NES)

	(as at 31 December 2015)				(as at 31 December 2014)			
	Shares (number)	NES (number)	Close relatives' security holdings (number/type)	Others (number)	Shares (number)	NES (number)	Close relatives' security holdings (number/type)	Others (number)
<b>Board of Directors</b>								
Ch. Franz	3,663	350	-	-	-	350	-	-
A. Hoffmann	-*	200	-	-	-*	200	-	-
P. Baschera	1	4,600	-	-	1	4,600	-	-
J. Bell	300	1,647	-	-	300	1,647	-	-
P. Bulcke	-	2,500	-	-	-	1,350	-	-
D. Julius	350	2,050	-	-	350	2,050	-	-
R.P. Lifton	-	-	-	-	n.a.	n.a.	n.a.	n.a.
B. Poussot	-	-	-	-	n.a.	n.a.	n.a.	n.a.
A. Oeri	-*	187,793	-	-	-*	187,793	-	-
S. Schwan	See '5.16 Security holdings'				See '5.16 Security holdings'			
	Corporate Executive Committee on page 188				Corporate Executive Committee on page 188			
P.R. Voser	-	3,600	-	-	-	3,600	-	-
B. Weder di Mauro	200	800	-	-	200	800	-	-
<b>Total</b>	<b>4,514</b>	<b>203,540</b>	<b>-</b>	<b>-</b>	<b>851</b>	<b>202,390</b>	<b>-</b>	<b>-</b>

\* Shares held by the shareholder group with pooled voting rights not listed.

## 5. Remuneration of the Corporate Executive Committee

#### 5.1 Resolution and approval

Remuneration of the members of the Corporate Executive Committee was decided at the Remuneration Committee's discretion, taking into account market comparisons.

As in the previous year, in 2016, the Board of Directors will separately submit the total aggregate bonuses of the Corporate Executive Committee to the General Meeting for the 2015 financial year for retrospectively binding approval.

The maximum amounts of the total aggregate remuneration of the Corporate Executive Committee for the period between the ordinary General Meeting 2016 and the ordinary General Meeting 2017 will be tabled in 2016 as in the previous year for the General Meeting's prospectively binding approval (see 2.2).

#### 5.2 Amount of remuneration to members of the Corporate Executive Committee

The general provisions assigning authority for decisions on Corporate Executive Committee remuneration to the Remuneration Committee and to the Board of Directors are outlined on pages 160, '2. Remuneration decision process and approval framework'.

In 2015, members of the Corporate Executive Committee received remuneration for their work as shown in 5.3–5.12. The amount of remuneration for the CEO, Severin Schwan, is explained in 5.3 in detail.

### 5.3 Highest total remuneration paid to Severin Schwan as a member of the Corporate Executive Committee

Severin Schwan, executive member of the Board of Directors, received his remuneration in his primary function as CEO. It is reflected as the highest total

#### Highest total remuneration paid to Severin Schwan as a member of the Corporate Executive Committee (in CHF)

	2015	2014 <sup>19</sup>
Base salary	4,000,000	4,000,000
S-SARs <sup>20</sup>	2,600,270	2,600,131
RSUs (Restricted Stock Units)	781,658 <sup>21*</sup>	781,694*
Pension funds/MGB <sup>22</sup> /insurances	563,879**	553,246**
Roche Connect	100,008	100,008
Subtotal	8,045,815	8,035,079
Bonus (subject to approval of the total aggregate bonuses for the Corporate Executive Committee by Annual General Meeting 2016)		
– Blocked non-voting equity securities/shares	3,126,984 <sup>23*</sup>	1,340,136*
PSP	744,485 <sup>24*</sup>	2,574,419 <sup>25</sup>
Other payments: expense allowance/for tax consulting services	32,586	35,774
<b>Total<sup>26</sup></b>	<b>11,949,870</b>	<b>11,985,408</b>

\* Calculation of value of non-voting equity securities/shares in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%).

\*\* Including employer contribution of social securities' beneficial parts.

19 For detailed calculation of the remuneration for 2014 and 2013 see Annual Report 2014, page 159.

20 Number of S-SARs 2015: 59,997, grant value according to the trinomial model for American call options: CHF 43.34. Trinomial model for American call options value as described in '5.6 Stock-settled Stock Appreciation Rights (S-SARs) of the other members of the Corporate Executive Committee', page 180.

21 Number of RSUs 2015: 5,466, grant value CHF 256.10 (NES closing price at grant date on 5 March 2015) per RSU (2014: Number of RSUs: 5,551, grant value: CHF 252.19 [NES average market price over a 90 days period prior to grant date on 6 March 2014] per RSU).

22 MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

23 Shares blocked for 10 years (calculation of number of shares based on the share price at the date of transfer in April 2016 after approval at the AGM 2016).

24 Target number of bearer shares for PSP 2015–2017 (4,872 bearer shares) multiplied per bearer share price averaged over the three months (October to December 2014) prior to the start of the performance cycle 2015–2017, CHF 273.66/bearer share.

25 Total estimated value of Annual Report 2014 for the year 2014: PSP 2012–2014: Award of 175% of the originally targeted NES awarded for 2012–2014 (15,888 NES in total), spread over the relevant period of time, i.e. 1/3 for the year 2014, value calculated using the year-end price as at 31 December 2014, CHF 269.90 per non-voting equity security (NES). PSP 2013–2015 and 2014–2016: Estimated value calculated using the year-end price as at 31 December 2014, CHF 269.90 per non-voting equity security (NES), based on the number of NES originally targeted (7,314 NES and 5,413 NES, respectively) subject to changes in the number and value of NES awardable under the plan on 31 December 2015 and 31 December 2016, respectively, and spread over the relevant period of time, i.e. 1/3 for the year 2014. The Board of Directors will vote on the actual allocation of originally targeted NES on 31 December 2015 and 31 December 2016, respectively, according to the TSR achieved.

26 Includes an annual expense allowance (CHF 30,000) and payments for tax consulting services (CHF 2,586; 2014: CHF 5,774). Additionally, employer contribution to AHV/IV/ALV of CHF 1,349,642 (2014: CHF 1,261,596) was paid that does not form part of compensation.

remuneration paid to a member of the Corporate Executive Committee (see below) and included in the total amount paid to the Corporate Executive Committee (see '5.12 Total remuneration paid to the members of the Corporate Executive Committee', page 185).

### 5.4 Base pay of the other members of the Corporate Executive Committee

#### Base pay (in CHF)

	2015	2014
S. Ayyoubi	1,200,000	1,200,000
R. Diggelmann	1,275,000	1,150,000
A. Hippe	1,600,000	2,100,000*
G.A. Keller	1,500,000	1,500,000
D. O'Day	2,375,000	2,000,000
<b>Total</b>	<b>7,950,000</b>	<b>7,950,000</b>

\* Including CHF 500,000 for loss of pension rights granted by former employer (contractual agreement, each for 2012–2014).

### 5.5 Bonuses of the other members of the Corporate Executive Committee

The Remuneration Committee of the Board of Directors determined the Corporate Executive Committee members' bonuses based on the performance 2015 against the agreed objectives. The total aggregate amount of bonuses will be brought forward for a binding vote by the Annual General Meeting 2016.

Except for Severin Schwan, all members of the Corporate Executive Committee will receive the bonus 2015 as a 100% cash payment which is due in April 2016. Severin Schwan will receive the bonus in form of Roche shares which are blocked for 10 years. Bonus payment is due in April 2016 (see page 178).

#### Bonus (in CHF)

	2015 (subject to approval of the total aggregate bonuses of the Corporate Executive Committee by the Annual General Meeting 2016)	2014
S. Ayyoubi	1,600,000	1,500,000
R. Diggelmann	1,400,000	1,300,000
A. Hippe	2,100,000	2,000,000
G.A. Keller	1,400,000	1,300,000
D. O'Day	3,100,000	3,000,000
<b>Total</b>	<b>9,600,000</b>	<b>9,100,000</b>

AUDITED

AUDITED

## 5.6 Stock-settled Stock Appreciation Rights (S-SARs) of the other members of the Corporate Executive Committee

The S-SARs shown in the 5.16.2 'S-SARs' table on page 190 were introduced by Roche on 1 January 2005 in place of stock options. S-SARs entitle holders to benefit financially from any increase in the value of Roche's non-voting equity securities (NES) between the grant date and the exercise date. The strike price for S-SARs under the terms of this multi-year plan was the closing price for Roche NES at grant date. All S-SARs vest three years after the grant date. Vested S-SARs can be exercised (converted into NES) within seven years of the grant date. Unexercised S-SARs lapse without compensation.

### Stock-settled Stock Appreciation Rights (S-SARs) (in CHF)

	S-SARs 2015	S-SARs 2014
S. Ayyoubi	780,380	780,140
R. Diggelmann	780,380	780,140
A. Hippe	1,040,290	1,040,138
G.A. Keller	975,280	975,246
D. O'Day	1,300,200	1,300,280
<b>Total</b>	<b>4,876,530</b>	<b>4,875,944</b>

AUDITED

<sup>27</sup> For further information on the trinomial model for American options: Please refer to Boyle, Phelim P.: 'A lattice framework for options pricing with two state variables', The Journal of Financial and Quantitative Analysis, Volume 23, Issue 1 (Mar 1988), 1–12, [www.roche.com/trinomial\\_model.pdf](http://www.roche.com/trinomial_model.pdf).

<sup>28</sup> See strike prices in table 5.16.2 'S-SARs', page 190.

The fair value of the S-SARs is calculated at the grant date using the trinomial model for American options. The trinomial model is an effective method for valuation of American call options, as it considers the possibility of exercising the option any time prior to maturity (called 'American' option, as compared to a 'European' option, which only allows exercise at their maturity date).<sup>27</sup>

The numbers of S-SARs, the strike prices, expiry dates and grant values for S-SARs are shown in the 5.16.2 'S-SARs' table on page 190. The numbers of S-SARs as calculated at the time of issue have been entered as values in the table below and on page 178.<sup>28</sup>

## 5.7 Restricted Stock Units of the other members of the Corporate Executive Committee

Restricted Stock Units (RSUs)—rights to receive non-voting equity securities after a three-year vesting period plus a value adjustment (being the amount equivalent to the sum of the dividend paid during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted)—were introduced in 2013 as a new

remuneration component partially replacing S-SARs. The value of S-SAR awards was reduced to 65% and the 35% balance is awarded in the form of RSUs.

RSU awards are allocated individually at the Remuneration Committee's discretion and will be vested to the recipient after three years only. Thereafter, resulting non-voting equity securities may remain blocked for up to 10 years.

### Restricted Stock Units (RSUs)

	2015 (number)	2015 (value in CHF)	2014 (number)	2014 (value in CHF)
S. Ayyoubi	1,639	332,478**	1,665	419,896
R. Diggelmann	1,639	419,748	1,665	419,896
A. Hippe	2,186	312,606*	2,220	312,621*
G.A. Keller	2,049	293,015*	2,081	524,807
D. O'Day	2,733	699,921	2,775	699,827
<b>Total</b>	<b>10,246</b>	<b>2 057,768</b>	<b>10,406</b>	<b>2,377,047</b>

\* Calculation of value in consideration of reduction of value due to an additional blocking period of 10 years, reduced market value: 55.839%.

\*\* Calculation of value in consideration of reduction of value due to an additional blocking period of 4 years, reduced market value: 79.209%. Calculation of value 2015: Number of RSUs 2015 multiplied by grant value of CHF 256.10 (NES closing price at grant date on 5 March 2015) per RSU. Calculation of value 2014: Number of RSUs 2014 multiplied by grant value of CHF 252.19 (NES average market price over a 90 days period prior to grant date on 6 March 2014) per RSU.

AUDITED

### 5.8 Performance Share Plan (PSP) of the other members of the Corporate Executive Committee

The members of the Corporate Executive Committee and other members of senior management (currently some 150 individuals worldwide) participate in the Performance Share Plan (PSP).

The PSP consists of overlapping three-year performance cycles, with a new cycle beginning each year. In 2015 there were thus three cycles in progress (PSP 2013–2015, PSP 2014–2016 and PSP 2015–2017), whereas PSP 2013–2015 closed on 31 December 2015 with 50% of the targeted NES awarded (PSP 2012–2014 per 31 December 2014: 175% of the targeted NES awarded). For the historical PSP performance see 3.1.5).

Under the provisions of this plan, a number of non-voting equity securities (NES) or bearer shares have been reserved for the participants in each cycle. The number of securities actually awarded will depend on whether and to what extent an investment in Roche securities (shares and NES) outperforms the average return on an investment in securities issued by a peer set of peer companies<sup>29</sup>. Comparisons are based on the securities' market prices and dividend yields, i.e. on Total Shareholder Return (TSR). To reduce the effect of short-term market fluctuations, security prices are averaged over the three months (October to December) prior to the start of a performance cycle and over the three months (October to December) at the end of the cycle.

If Roche securities perform better than the average of the peer set and Roche's TSR increases at least 10% during a cycle, the Board of Directors can elect to increase the NES award. The maximum award is double the original-level reserved target number of NES according to the PSP plan (starting with PSP 2013–2015 cycle plus a value adjustment being the amount equivalent to the sum of the dividend paid during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted) and requires that Roche securities perform as well as or better than those of 75% of the peer set. In the event that an investment in Roche securities underperforms the average return delivered by the peer companies, fewer or no NES will be awarded.

In 2015, bearer shares were reserved under the plan for members of the Corporate Executive Committee as shown in the table on page 183 and on page 178. The Board of Directors will decide on the actual level of NES, bearer shares or cash equivalent awards for the PSP cycles 2014–2016 and 2015–2017 after the close of the 2016 and 2017 financial years, respectively. The aim of the PSP is to provide an incentive to participants to achieve steady value growth.

At the end of the PSP 2013–2015 cycle (based on a three-month average) with distributed dividends totalling CHF 19.969 billion (2015: CHF 6.901 billion; 2014: CHF 6.728 billion; 2013: CHF 6.340 billion), the

TSR of the Roche securities (NES and shares) ranked 11<sup>th</sup>, compared with its peer set of companies operating in the same industry. Therefore, according to the terms of the plan, the participants received 50% of the originally targeted NES (see table on page 184 for details).

The calculation of the PSP values for a corresponding reporting year will be newly based on the fair value at grant (bearer share prices averaged over the three months [October to December 2014] prior to the start of the performance cycle 2015–2017) calculated per the target amount of Roche securities over an entire PSP three-year cycle with no distribution to one year. This is instead of the former calculation of all three cycles and corresponding distribution to the reporting year (i.e. 2 cycles disclosed at target, with the remaining cycle of the PSP based on the actual value of PSP vesting in the year).

In 2016, RSUs for the Corporate Executive Committee will be replaced by awarding of additional PSPs. Therefore, the long-term incentive programmes for the Corporate Executive Committee will comprise PSP and S-SAR awards, 50% each.

In future, PSP awards as a remuneration component will be reserved for the Corporate Executive Committee and the Enlarged Corporate Executive Committee.

As of 2016, the long-term incentive programmes for the previous senior management will comprise S-SAR and RSU awards, 50% each.

**Performance Share Plan (PSP) (new calculation)**

	Target number of bearer shares for PSP 2015–2017 (number)	Fair value at grant per bearer share, bearer share prices averaged over the three months (October to December 2014) prior to the start of the performance cycle 2015–2017 (value in CHF)	Fair Value at target number of bearer shares for PSP 2015–2017 (value in CHF)	2015	Target number of NES for PSP 2014–2016 (number)	Fair value at grant per NES, NES prices averaged over the three months (October to December 2013) prior to the start of the performance cycle 2014–2016 (value in CHF)	2014
S. Schwan	4,872	273.66	744,485*		5,413	246.29	744,428*
S. Ayyoubi	1,461	273.66	399,817		1,624	246.29	399,975
R. Diggelmann	1,461	273.66	399,817		1,353	246.29	333,230
A. Hippe	1,948	273.66	533,090		2,165	246.29	533,218
G.A. Keller	1,827	273.66	499,977		2,030	246.29	499,969
D. O'Day	2,436	273.66	666,636		2,706	246.29	666,461
<b>Total</b>	<b>14,005</b>	<b>273.66</b>	<b>3,243,822</b>		<b>15,291</b>	<b>246.29</b>	<b>3,177,281</b>

\* Calculation of value of non-voting equity securities/shares in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%).

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29 See footnote 1, page 160.

<b>Performance Share Plan (PSP) (former calculation)</b>						
	Target number of Roche bearer shares for PSP 2015–2017 (number)	Target number of NES for PSP 2014–2016 (number)	2015		2014	
			Awards of 50% of targeted number of NES for PSP 2013–2015 (number)	Total estimated value <sup>30</sup> of PSP awards (2013–2015, 2014–2016 and 2015–2017) (value in CHF)	Awards of 175% of targeted number of NES for PSP 2012–2014, 2013–2015 and 2014–2016 (number)	Total estimated value <sup>30</sup> of PSP awards (2012–2014, 2013–2015 and 2014–2016) (value in CHF)
S. Schwan	4,872	5,413	3,657	866,375*	15,888	2,574,419 <sup>31</sup>
S. Ayyoubi	1,461	1,624	1,097	385,472	4,765	772,206
R. Diggelmann	1,461	1,353	914	343,644	1,817	449,608
A. Hippe	1,948	2,165	1,463	513,963	6,354	1,029,601
G.A. Keller	1,827	2,030	1,371	481,886	5,957	965,252
D. O'Day	2,436	2,706	1,829	642,546	5,163	1,036,911
<b>Total</b>	<b>14,005</b>	<b>15,291</b>	<b>10,331</b>	<b>3,233,886</b>	<b>39,944</b>	<b>6,827,997</b>

30 Total estimated value for 2015:

a) PSP 2013–2015: Award of 50% of the originally targeted NES awarded for 2013–2015 (excluding a value adjustment to be added in NES at award), spread over the relevant period of time, i.e. 1/3 for the year 2015, value calculated using the year-end price as at 31 December 2015, CHF 276.40 per non-voting equity security; plus

b) PSP 2014–2016: Estimated value calculated using the year-end price as at 31 December 2015, CHF 276.40 per non-voting equity security (NES), based on the number of NES originally targeted subject to changes in the number and value of NES awardable under the plan on 31 December 2016, and spread over the relevant period of time, i.e. 1/3 for the year 2015, (\* Calculation of value of non-voting equity securities in consideration of reduction of value due to blocking period of 10 years [reduced market value: 55.839%]); plus

c) PSP 2015–2017: Estimated value calculated using the year-end price as at 31 December 2015 CHF 276.75 per bearer share (RO), based on the number of RO originally targeted subject to changes in the number and value of RO awardable under the plan on 31 December 2017, and spread over the relevant period of time, i.e. 1/3 for the year 2015, (\* Calculation of value of shares in consideration of reduction of value due to blocking period of 10 years [reduced market value: 55.839%]).

The Board of Directors will vote on the actual allocation of originally targeted NES and RO on 31 December 2016 and 31 December 2017, respectively, according to the TSR achieved.

31 Total estimated value of Annual Report 2014 for the year 2014: PSP 2012–2014: Award of 175% of the originally targeted NES awarded for 2012–2014 (15,888 NES in total), spread over the relevant period of time, i.e. 1/3 for the year 2014, value calculated using the year-end price as at 31 December 2014, CHF 269.90 per non-voting equity security. PSP 2013–2015 and 2014–2016: Estimated value calculated using the year-end price as at 31 December 2014, CHF 269.90 per non-voting equity security (NES), based on the number of NES originally targeted (7,314 NES and 5,413 NES, respectively) subject to changes in the number and value of NES awardable under the plan on 31 December 2015 and 31 December 2016, respectively, and spread over the relevant period of time, i.e. 1/3 for the year 2014. The Board of Directors will vote on the actual allocation of originally targeted NES on 31 December 2015 and 31 December 2016, respectively, according to the TSR achieved.

## 5.9 Indirect benefits of the other members of the Corporate Executive Committee

Employer contributions made in 2015 to social security schemes, pension plans and a Group-wide employee stock purchase plan (Roche Connect) in respect of members of the Corporate Executive Committee are shown in the 'Indirect benefits (employer contributions)' table on page 185 and employer contributions as shown in the table on page 178.

Roche Connect is a voluntary stock purchase plan offering employees the opportunity to buy Roche non-voting equity securities (NES) up to an amount equal to 10% of their annual salary at a 20% discount. NES purchased under this plan are subject to a holding period, which is four years in Switzerland.

In addition, members of the Corporate Executive Committee received annual expense allowances and some members payments for foreign tax obligations and tax consulting services as shown in the table.

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Roche paid legally required employer's contributions of total CHF 2,339,000 (2014: CHF 2,136,332) to Swiss social security programmes providing retirement, disability and unemployment benefits (AHV/IV/ALV)

for the members of the Corporate Executive Committee beside the legally required contributions separately stated for the CEO.

## Indirect benefits (employer contributions) (in CHF)

	Pension funds/ MGB <sup>32</sup> / insurances*	Annual expense allowances	Roche Connect	2015		Pension funds/ MGB <sup>32</sup> / insurances*	Annual expense allowances	Roche Connect	2014	
				Payments for tax/tax consulting services	Pensions				Payments for tax/tax consulting services	Pensions
S. Ayyoubi	98,969	30,000	15,000	3,888	90,567	30,000	15,000	2,908	-	-
R. Diggelmann	313,879	30,000	-	-	303,828	30,000	-	-	-	-
A. Hippe	313,879	30,000	39,996	16,556	297,829	30,000	39,996	19,488	-	-
G.A. Keller	98,969	30,000	37,500	-	439,540	30,000	37,500	-	-	-
D. O'Day	313,879	30,000	49,992	696,433	297,351	30,000	49,992	508,755	142,488	531,151
<b>Total</b>	<b>1,139,575</b>	<b>150,000</b>	<b>142,488</b>	<b>716,877</b>	<b>1,429,115</b>	<b>150,000</b>	<b>142,488</b>	<b>531,151</b>		

\* Including employer contribution of social securities' beneficial parts.

## 5.10 Other remuneration and loans of members of the Corporate Executive Committee

Based on contractual obligations, in 2015, Roche paid to individual members of the Corporate Executive Committee for their children's schooling costs totalling CHF 68,340 (2014: CHF 109,596).

All aforementioned additional payments are included in the total remuneration to members of the Corporate Executive Committee.

In 2015, there are no loans or credits granted to the members of the Corporate Executive Committee.

The maximum regular period of notice for members of the Corporate Executive Committee is 12 months. There are no change-of-control clauses in the employment contracts.

32 MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

AUDITED

AUDITED

## 5.11 Remuneration to former members of the Corporate Executive Committee

In 2015, pensions totalling CHF 2,049,180 (2014: CHF 2,049,180) were paid to former Corporate Executive Committee members.

AUDITED

AUDITED

## 5.12 Total remuneration paid to the members of the Corporate Executive Committee

For the 2015 calendar year, the members of the Corporate Executive Committee received remuneration including bonuses totalling CHF 41,150,785 (2014: CHF 42,904,327), excluding additional employer's contribution paid to AHV/IV/ALV totalling CHF 3,688,642 (2014: CHF 3,397,928) that does not form part of compensation.

AUDITED

No additional remuneration other than the above mentioned payments was paid to current or former members of the Corporate Executive Committee.

#### **5.13 Executive remuneration subject to approval at the Annual General Meeting**

##### **5.13.1 Submission of Executive total aggregate bonuses for a binding vote at the Annual General Meeting**

The Board of Directors proposes awarding the members of the Corporate Executive Committee

##### **Retrospective approvals of the members of the Executive Committee's total aggregate bonuses (in CHF)\***

	Proposal AGM 2016	AGM 2015	AGM 2014
Total aggregate amount proposal for approval/ approved by the AGM	Aggregate amount for financial year 2015 <b>12,726,984</b>	Aggregate amount for financial year 2014 <b>10,440,136</b>	Aggregate amount for financial year 2013 <b>9,316,780</b>

\* Excluding legally required employer's contributions to AHV/IV/ALV.

##### **5.13.2 Submission of Executive total future aggregate remuneration for a binding shareholder vote**

The Board of Directors proposes that the 2016 ordinary AGM approve remuneration for the Corporate Executive Committee totalling not more than CHF 41,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2017 ordinary AGM.

bonuses (for Severin Schwan in form of Roche shares which are blocked for 10 years, for all other members of the Corporate Executive Committee as a 100% cash payment, see 5.5) totalling CHF 12,726,984 in respect of the 2015 financial year (2014: CHF 10,440,136), excluding legally required employer's contributions to AHV/IV/ALV, and will submit this proposed total amount to the ordinary Annual General Meeting (AGM) 2016 for a binding vote.

##### **Prospective approvals of the members of the Executive Committee's total future aggregate remuneration (in CHF)\***

	Proposal AGM 2016	AGM 2015	AGM 2014
Total aggregate amount proposal for approval/ approved by the AGM	Aggregate amount for the period AGM 2016–AGM 2017 <b>41,000,000</b>	Aggregate amount for the period AGM 2015–AGM 2016 <b>37,000,000</b>	Aggregate amount for the period AGM 2014–AGM 2015 <b>36,000,000</b>

\* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses.

##### **5.13.3 Reconciliation of the reported remuneration with the shareholders' prospectively approved remuneration for the members of the Corporate Executive Committee**

The 2014 ordinary AGM approved remuneration for the Corporate Executive Committee totalling not more than CHF 36,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and

excluding bonuses) for the period ending at the 2015 ordinary AGM.

For comparison, from 2014 ordinary AGM to ordinary 2015 AGM remuneration amounted to CHF 34,004,297 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses. PSP: Assumption of maximum value).

##### **Prospectively approved total remuneration of the members of the Executive Committee in comparison to total remuneration (in CHF)\***

	Total remuneration for the period AGM 2015–AGM 2016	Total remuneration for the period AGM 2014–AGM 2015	Total remuneration for the period AGM 2013–AGM 2014
Maximum of total remuneration approved by the AGM	37,000,000	36,000,000	Approval not yet required
Total remuneration		34,004,297	32,094,464
Within the approved limit Yes/No		Yes	-
Calculation at end of period			
Additional amount paid for new members of the Corporate Executive Committee after approval by the AGM and not within the approved total amount	No	No	-

\* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses.

#### **5.14 Clawback**

In addition to applicable statutory provisions, Roche's long-term incentive plans include the option to partially reclaim distributed compensation as a result of special circumstances (clawback).

If the employee voluntarily serves notice of termination of employment, S-SARs and RSUs which are unvested at the date of termination of employment lapse immediately without any compensation.

Upon termination of employment as a result of serious misconduct all S-SARs and RSUs granted and outstanding, whether vested or unvested, shall lapse immediately without any compensation. According to the S-SARs plan rules, serious misconduct by the participant may include (inter alia):

- activity leading to serious disciplinary action
- repeated or willful failure to perform such duties as have been reasonably assigned by Roche
- violation of any law or public regulation
- commission of a crime
- gross negligence or willful misconduct in employment
- engaging in conduct bringing disgrace or disrepute to Roche and/or any of its subsidiaries
- violation of any of Roche's directives and guidelines relating to business conduct

	Type of security	Value to be acquired
CEO	Shares and/or NES	2 × annual base salary
Members of the Corporate Executive Committee	Shares and/or NES	1 × annual base salary

According to the regulations of the PSP programme, the originally targeted but not awarded NES or shares shall lapse without any compensation upon notice of termination of employment being given for any reason other than redundancy, disability or retirement.

#### **5.15 Guidelines for security holdings**

In 2012, the Board of Directors decided that the CEO and other CEC members must acquire shares and/or NES equivalent to two annual base salaries (CEO) and one annual base salary, respectively, by the end of 2016 and retain these holdings for as long as they serve on the CEC. With the exception of Roland Diggelmann all members of the Corporate Executive Committee already fulfil this requirement.

#### **5.16 Security holdings**

As at 31 December 2015 (as at 31 December 2014, respectively) the members of the CEC and persons closely associated with them held securities as shown in the table 'Shares and non-voting equity securities (NES)', 'S-SARs', 'Restricted Stock Units (RSUs)' below.

#### **5.16.1 Shares and non-voting equity securities (NES)**

<b>Corporate Executive Committee</b>	(as at 31 December 2015)			(as at 31 December 2014)		
	Shares (number)	NES (number)	Close relatives' security holdings (number/type)	Shares (number)	NES (number)	Close relatives' security holdings (number/type)
S. Schwan	115,745	16,179	-	91,279	14,065	-
S. Ayyoubi	12,622	13,223	-	8,104	12,923	-
R. Diggelmann	-	870	-	-	853	-
A. Hippe	6,970	9,370	-	6,970	8,184	-
G.A. Keller	19,192	12,897	1,100 shares	19,192	7,638	1,100 shares
D. O'Day	3,065	8,143	-	3	7,149	-
<b>Total</b>	<b>157,594</b>	<b>60,682</b>	<b>1,100 shares</b>	<b>125,548</b>	<b>50,812</b>	<b>1,100 shares</b>

**AUDITED**

**5.16.2 S-SARs**

<b>Corporate Executive Committee</b>	Number of S-SARs held on 31 December 2015					
	2015	2014	2013	2012	2011	2010
S. Schwan	59,997	54,453	71,472	20,000	–	–
S. Ayyoubi	18,006	16,338	21,441	49,161	–	–
R. Diggelmann	18,006	16,338	17,874	15,000	12,732	6,489 <sup>33</sup>
A. Hippe	24,003	21,783	28,590	–	–	–
G.A. Keller	22,503	20,424	26,805	20,000	–	–
D. O'Day	30,000	27,231	35,739	–	–	–
<b>Total</b>	<b>172,515</b>	<b>156,567</b>	<b>201,921</b>	<b>104,161</b>	<b>12,732</b>	<b>6,489</b>
Price (CHF)	256.10	263.20	214.00	157.50	140.10	175.50
Market price per NES on 31 December 2015 (CHF)	276.40					
Expiry date	5.3.2022	6.3.2021	7.3.2020	8.3.2019	28.2.2018	4.2.2017
Grant value per S-SAR (CHF)	43.34	47.75*	36.38*	24.41*	15.38*	23.05*
Since 1.1.2012:						
— Trinomial model for American call options						
* Values according to corresponding annual reports						

<sup>33</sup> Options held in his former position: All of the options shown in the table were issued by Roche as employee stock options. Each option entitles the holder to purchase one Roche non-voting equity security (NES). Under the terms of this multi-year option plan, the strike price for options shown was the closing price for Roche NES at grant date. All of the options shown are non-tradable. 1/3 of the options are subject to a vesting period of one year, 1/3 have a vesting period of two years, and 1/3 a vesting period of three years. Unvested options lapse without compensation if employment is terminated voluntarily (for reasons other than retirement), while vested options must be exercised within a limited period of time.

AUDITED

AUDITED

**5.16.3 Restricted Stock Units (RSUs)**

<b>Corporate Executive Committee</b>	Number of RSUs held on 31 December 2015		
	2015	2014	2013
S. Schwan	5,466	5,551	7,023
S. Ayyoubi	1,639	1,665	2,107
R. Diggelmann	1,639	1,665	1,755
A. Hippe	2,186	2,220	2,809
G.A. Keller	2,049	2,081	2,633
D. O'Day	2,733	2,775	3,511
<b>Total</b>	<b>15,712</b>	<b>15,957</b>	<b>19,838</b>
Grant value per RSU	CHF 256.10 (NES closing price at grant date on 5 March 2015)	CHF 252.19 (NES average market price over a 90 days period prior to grant date on 6 March 2014)	CHF 199.33 (NES average market price over a 90 days period prior to grant date on 7 March 2013)

# Report of the Statutory Auditor to the General Meeting of Roche Holding Ltd, Basel

We have audited the accompanying remuneration report dated 26 January 2016 of Roche Holding Ltd for the year ended 31 December 2015. The audit was limited to the information according to articles 14–16 of the Ordinance against Excessive compensation in Stock Exchange Listed Companies (Ordinance) contained in the sections marked with a blue line, including the respective footnotes, on pages 156 to 191 of the remuneration report.

## Responsibility of the Board of Directors

The Board of Directors is responsible for the preparation and overall fair presentation of the remuneration report in accordance with Swiss law and the Ordinance against Excessive compensation in Stock Exchange Listed Companies. The Board of Directors is also responsible for designing the remuneration system and defining individual remuneration packages.

## Auditor's responsibility

Our responsibility is to express an opinion on the accompanying remuneration report. We conducted our audit in accordance with Swiss Auditing Standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the remuneration report complies with Swiss law and articles 14–16 of the Ordinance.

An audit involves performing procedures to obtain audit evidence on the disclosures made in the remuneration report with regard to compensation, loans and credits in accordance with articles 14–16 of the Ordinance. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatements in the remuneration report, whether due to fraud or error. This audit also includes evaluating the reasonableness of the methods

applied to value components of remuneration, as well as assessing the overall presentation of the remuneration report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

## Opinion

In our opinion, the remuneration report for the year ended 31 December 2015 of Roche Holding Ltd complies with Swiss law and articles 14–16 of the Ordinance.



KPMG AG

Ian Starkey  
Licensed Audit Expert  
Auditor in Charge

Marc Ziegler  
Licensed Audit Expert

Basel, 26 January 2016



# Independent Assurance Report on the Roche Sustainability Reporting

To the Corporate Governance and Sustainability Committee of Roche Holding AG, Basel ('Roche').

We have been engaged to perform assurance procedures to provide limited assurance on the aspects of the 2015 sustainability reporting of Roche included in the Annual Report 2015 ('Report').

## Scope and Subject matter

Our limited assurance engagement focused on the following data and information disclosed in the sustainability reporting of Roche and its consolidated subsidiaries for the year ended on December 31, 2015:

- The management of reporting processes with respect to the sustainability reporting in all material aspects and the preparation of Safety, Security, Health and Environmental protection ('SHE'), people key figures as well as the related control environment in relation to the data aggregation of these key figures;
- The SHE key figures (including greenhouse gas emissions for scope 1 & 2 and scope 3 resulting from business travel, compressed air and liquid nitrogen) in the tables and graphs on pages 114 to 131 and people key figures disclosed on pages 104 to 113 of the Report;
- The consolidated data and information on the Roche Group level in relation to the contributions breakdown, disclosed on page 98 and 99 of the Report;
- The materiality determination process of Roche at group level according to the requirements of the GRI G4 guidelines and disclosed on pages 4 and 5 of the Report;
- The design of the sustainability risks and opportunities determination process based on Roche corporate-level activities, disclosed on page 97 in the paragraph 'Assessing sustainability risks and opportunities' of the Report; and
- The people key figures disclosed on Roche's website within the section 'Non-Financial Reporting' under sub-section 'Value for Employees'.

## Criteria

The management reporting processes with respect to the sustainability reporting and key figures were assessed against the internal policies and procedures as set forth in the following:

- The Roche Group internal sustainability reporting guidelines based on the Responsible Care Health, Safety and

Environmental Protection reporting guidelines published by the European Chemical Industry Council CEFIC and the 'Sustainability Reporting Guidelines G4' published in 2013 by the Global Reporting Initiative (GRI);

- The Roche Group internal Corporate Reporting Manual, Version 2015.3 'Group Reporting Manual—Sustainability Reporting';
- The Roche materiality determination process based on the 'Sustainability Reporting Guidelines G4' published in 2013 by the Global Reporting Initiative (GRI);
- The defined guidelines, by which SHE, people and contributions key figures, and sustainability risks and opportunities are internally gathered, collated and aggregated.

The accuracy and completeness of sustainability indicators are subject to inherent limitations given their nature and methods for determining, calculating and estimating such data. Our assurance report should therefore be read in connection with Roche's internal guidelines, definitions and procedures on the reporting of its sustainability performance.

## Responsibility and Methodology

The Roche Corporate Governance and Sustainability Committee is responsible for both the subject matter and the criteria as well as for selection, preparation and presentation of the selected information in accordance with the criteria. Our responsibility is to form an independent opinion, based on our limited assurance procedures, on whether anything has come to our attention to indicate that the identified sustainability information selected and contained in this report is not stated, in all material respects, in accordance with the reporting criteria.

We planned and performed our procedures in accordance with the International Standard on Assurance Engagements (ISAE 3000) (revised) 'Assurance engagements other than audits or reviews of historical financial information'. This standard requires that we comply with ethical requirements, plan and perform the assurance engagement to obtain limited assurance on the identified sustainability information.

A limited assurance engagement under ISAE 3000 (revised) is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the

procedures performed in response to the assessed risks. Consequently, the nature, timing and extent of procedures for gathering sufficient appropriate evidence are deliberately limited relative to a reasonable assurance engagement and therefore less assurance is obtained with a limited assurance engagement than for a reasonable assurance engagement.

The procedures selected depend on the assurance practitioner's judgement.

## Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

## Summary of work performed

Our assurance procedures included, amongst others, the following work:

- **Evaluation of the application of Roche Group guidelines**  
Reviewing the application of the Roche Group internal corporate sustainability and contributions guidelines;
- **Site visits and management inquiry**  
Visiting selected sites of Roche's Pharmaceuticals and Diagnostics divisions in the USA, Canada, UK and China. The selection was based on quantitative and qualitative criteria;  
Interviewing personnel responsible for internal sustainability reporting and data collection at the sites we visited and at the Roche Group level to determine the understanding and application of Roche's internal sustainability guidelines;
- **Assessment of the key figures**  
Performing tests on a sample basis of evidence supporting selected SHE, contributions and people key figures (i.e. Roche accident rate, energy consumption, greenhouse gas emissions related to energy consumption, halogenated hydrocarbons, water, waste, contributions to healthcare institutions, patient organizations, public policy bodies, and philanthropic organizations, headcount/FTE data, and training hours) concerning completeness, accuracy, adequacy and consistency;
- **Inspection of documentation and analysis of relevant policies and principles**  
Inspecting relevant documentation on a sample basis, including Roche Group sustainability policies, management of reporting structures and documentation;

Inspecting the principles of the Roche materiality process providing the definition for the development of its adherence to GRI's environmental, social and economic reporting requirements addressing the soundness of the identification

process, determination of impacted stakeholders, peer and competition review, integration of relevant regulatory requirements, integration of key organisational values and objectives and report prioritisation of material aspects; and Inspecting the integration of the sustainability risks and opportunities in the Group Risk Management Process and its adherence to the internal guidelines;

## Assessment of the processes and data consolidation

Reviewing the management of and sustainability reporting processes for SHE, contributions and people key figures; and Assessing the consolidation process of data at Roche Group level.

We have not carried out any work on data reported for prior reporting periods, nor have we performed work in respect of projections and targets. We have not conducted any work on data other than outlined in the subject matter as defined above.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our assurance conclusions.

## Conclusion

Based on our work performed and described in this report on the identified sustainability Reporting 2015 nothing has come to our attention causing us to believe that in all material respects:

- the Roche Group internal sustainability reporting guidelines based on the GRI G4 Sustainability Reporting Guidelines as well as the CEFIC Guidelines are not applied;
- the internal reporting processes to collect and aggregate SHE and people data are not functioning as designed and provide an appropriate basis for its disclosure;
- the internal reporting processes to collect and aggregate contributions data are not functioning as designed and provide an appropriate basis for its disclosure;
- the Roche materiality determination process as disclosed does not adhere to the principles and guiding factors (e.g. soundness, stakeholder determination, peer review, relevance of regulatory environment, integration of key organisational values and objectives) defined with GRI G4;
- the design of the sustainability risks and opportunities determination process at corporate level as disclosed does not function as designed; and
- the sustainability information mentioned in the subject matter and disclosed within the sustainability reporting in the Roche Annual Report 2015 and on the referenced section of the webpage is not stated, in accordance with the reporting criteria.

Zurich, 28 January 2016  
PricewaterhouseCoopers AG

Christophe Bourgoin

Bettina Buomberger

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**Next Annual General Meeting:  
1 March 2016****Cautionary statement regarding forward-looking statements**

This Annual Report contains certain forward-looking statements. These forward-looking statements may be identified by words such as 'believes,' 'expects,' 'anticipates,' 'projects,' 'intends,' 'should,' 'seeks,' 'estimates,' 'future' or similar expressions or by discussion of, among other things, strategy, goals, plans or intentions. Various factors may cause actual results to differ materially in the future from those reflected in forward-looking statements contained in this Annual Report, among others: (1) pricing and product initiatives of competitors; (2) legislative and regulatory developments and economic conditions; (3) delay or inability in obtaining regulatory approvals or bringing products to market; (4) fluctuations in currency exchange rates and general financial market conditions; (5) uncertainties in the discovery, development or marketing of new products or new uses of existing products, including without limitation negative results of clinical trials or research projects, unexpected side effects of pipeline or marketed products; (6) increased government pricing pressures; (7) interruptions in production; (8) loss of or inability to obtain adequate protection for intellectual property rights; (9) litigation; (10) loss of key executives or other employees; and (11) adverse publicity and news coverage.

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The Roche Annual Report is published in German and English.

The report consists of the actual Annual Report and of the Finance Report and contains the Annual Report, the Annual Financial Statements and the Consolidated Financial Statements as per the Articles of Incorporation in the sense of a management reporting.

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## ***Doing now what patients need next***

*We believe it's urgent to deliver medical solutions right now—even as we develop innovations for the future. We are passionate about transforming patients' lives. We are courageous in both decision and action. And we believe that good business means a better world.*

*That is why we come to work each day. We commit ourselves to scientific rigour, unassailable ethics, and access to medical innovations for all. We do this today to build a better tomorrow.*

*We are proud of who we are, what we do, and how we do it. We are many, working as one across functions, across companies, and across the world.*

**We are Roche.**



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