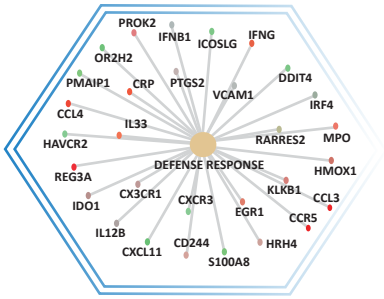
AnyGenes®

biomarkers & signaling pathways profiler

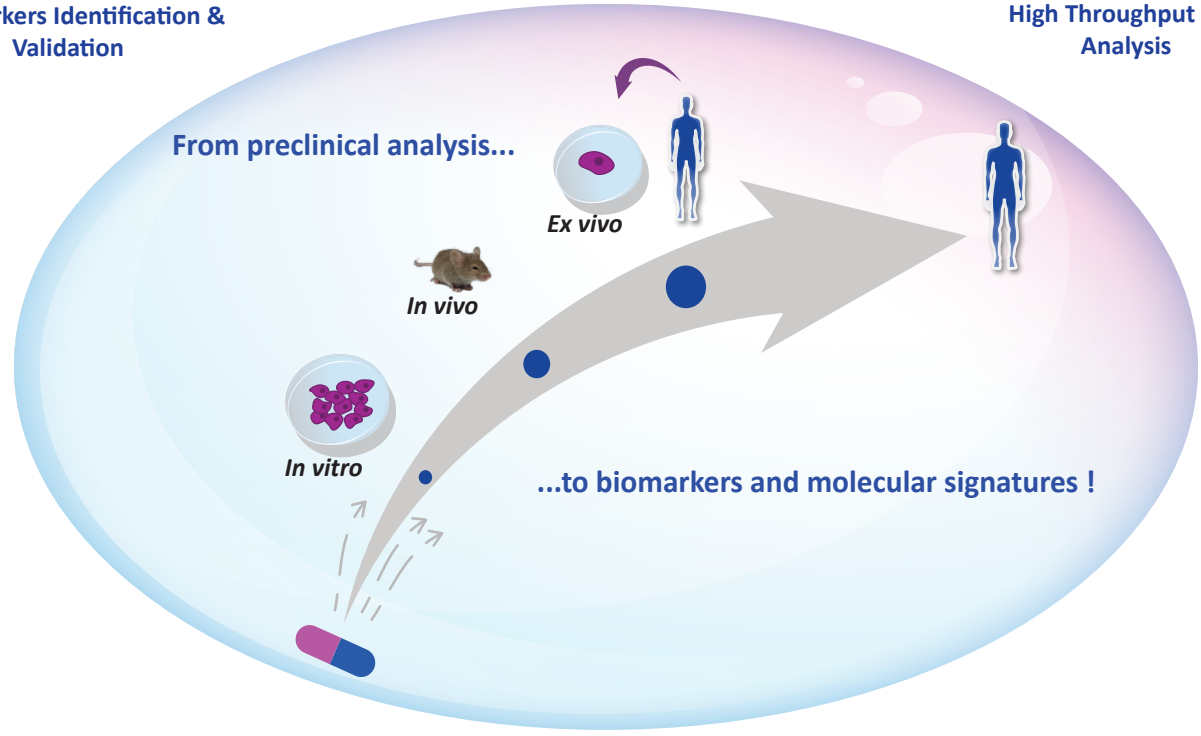
ANYGENES TRANSLATIONAL MULTIPLATFORM ACCELERATES YOUR PROJECTS DEVELOPMENT

Biomarkers Identification & Validation

More than 10 years of successful molecular services in drug development

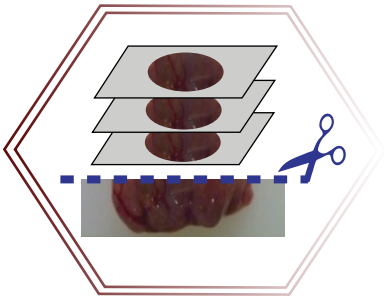


High Throughput Data Analysis

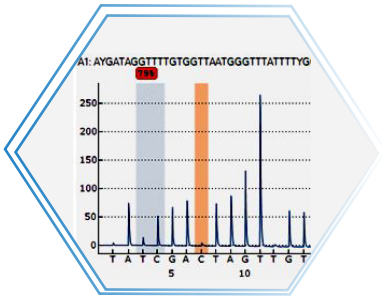


AnyGenes, with its wide range of services from wet lab experiments to data analysis, has great ability to adapt its services to your project needs by advising and providing you with the best strategy at **competitive prices** and **high confidentiality**.

In Vitro Drug Development



Histoculture Drug Response Assays



Methylation Studies

WIDE RANGE OF ANALYSIS...

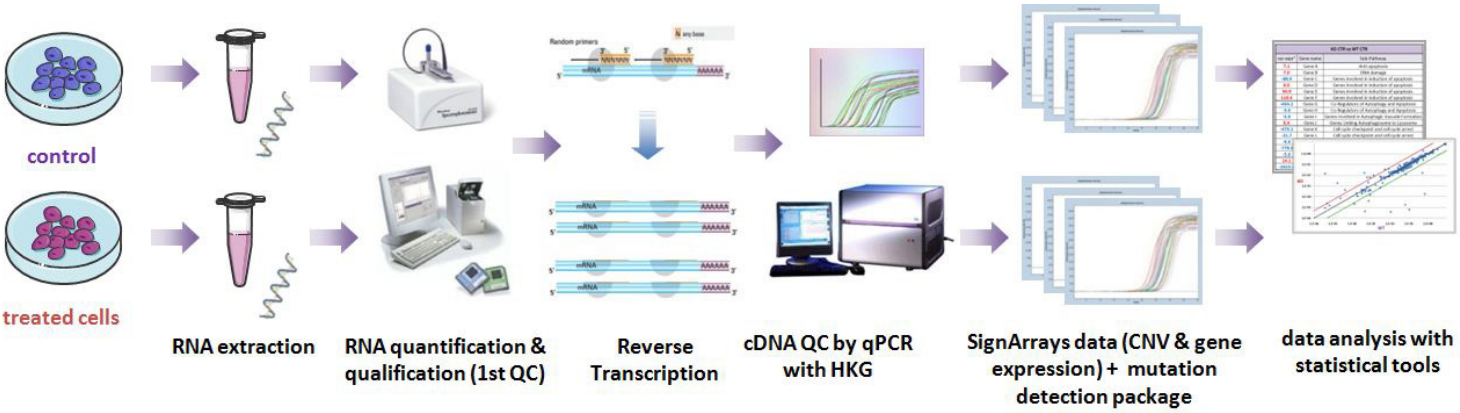
✓ *In vitro drug development*

- Study design
- Molecular screening program for mechanism of action and biomarker signatures
- Molecular signatures for laboratory models (Gene editing, KO mice,…)
- Transcriptional events of specific signaling pathways.

We can help to conduct your drug development with our **large collection of human cell lines**, supported by our proprietary SignArrays system to discover **biomarkers and molecular signature** of your molecules.

1) **Proliferation and functional assays** to evaluate IC50

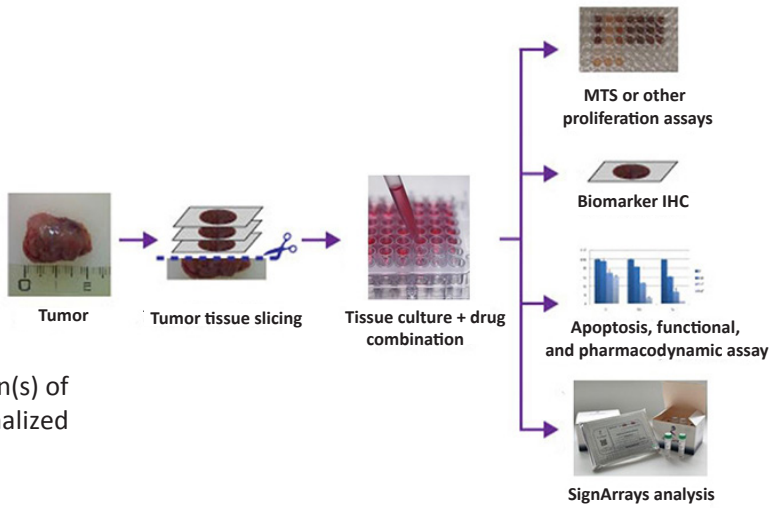
2) **High-throughput signaling pathways analysis with AnyGenes SignArrays system**, to identify biomarkers, molecular signatures and mechanism of action



✓ Histoculture Drug Response Assays (HDRA)

The relevance of some models can be sometimes questioned due to the heterogeneity and microenvironment of tumors. HDRA can be a solution,
its reflects the response of disease to therapeutic treatment,

Use our new ex-vivo histoculture protocols patient-derived tumors to explore the effect of your new therapeutic drugs.



This service is perfect to:

- Monitor drug response by identifying the best combination(s) of therapeutic molecules for each individual patient (personalized medicine)
- Identify potential mechanism(s) of resistance
- Validate of the ex-vivo results
- Discover **molecular signature** and **biomarkers** by combining our SignArrays® system with specific **signaling pathways**.

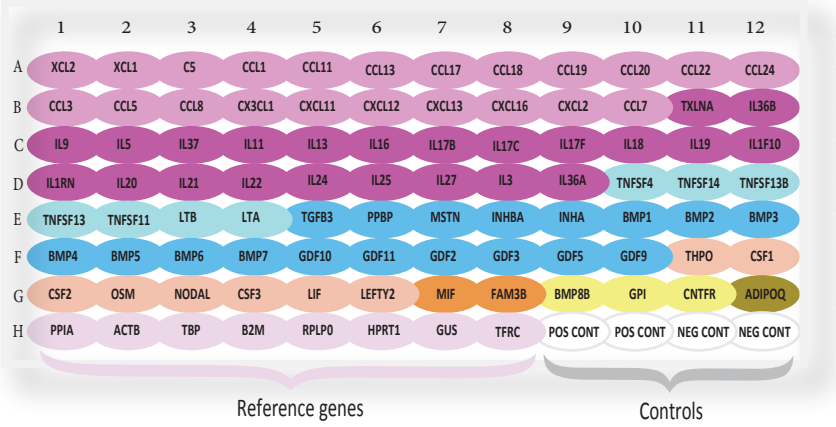
Note: this service depends on the availability of surgical specimen

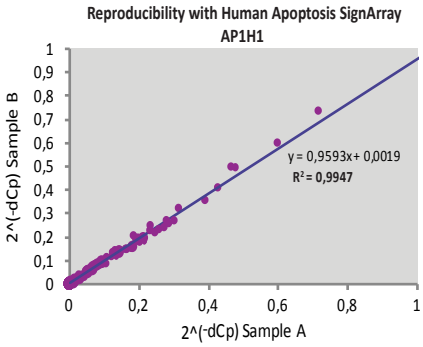
OUR CONCEPT: MOLECULAR MULTIPLATFORM SERVICES

✓ Proprietary SignArrays system to explore signaling pathways and mechanisms of action

AnyGenes® provides full **services** of **gene expression** for **biomarker discovery** and validation based on our **qPCR arrays technology** (SignArrays) specific to any **signaling pathways**. No need to invest in instruments or reagents, our scientists team will be pleased to help you to design and perform your **preclinical study** or **clinical development** in order to respond to your research needs.

Our SignArrays system has been optimised in conjunction with our **Perfect Master Mix Reagents** to ensure you the best **qPCR** performance with high efficiency, specificity, reliability and reproducibility.





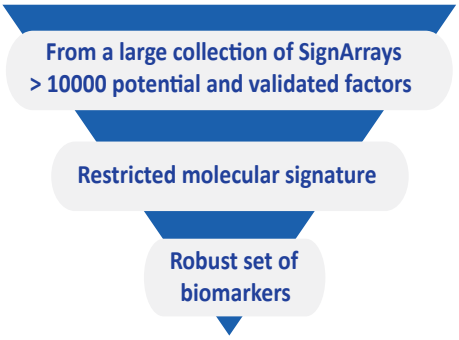
We have a large database of signaling pathways ready to use (> 300 signaling pathways):

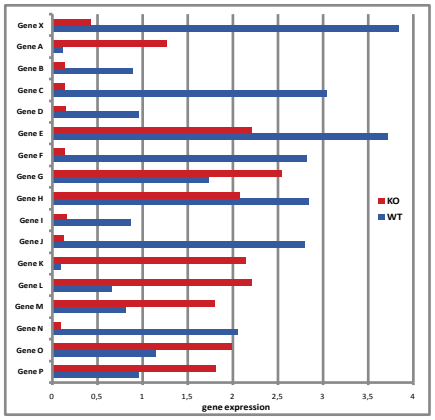
Signaling Pathways	Inflammation	Apoptosis	Autophagy	Necrosis
	Cell Cycle	EndoMT	Cytokines	Cell Proliferation
	Cell Motility	Oxidative Stress	Fibrosis	Growth Factors
Autoimmune Diseases	Crohn	Thyroiditis	Autism	Multiple Sclerosis
Pharmacological Pathways	Drug Resistance	Drug Metabolism	Drug Neurotoxicity	Drug Nephrotoxicity
Neurodegenerative Diseases	Alzheimer	Parkinson	Huntington	Lysosomal Storage

And efficient protocols used routinely in our laboratory for various biological samples: biopsies, cell lines, blood, FFPE... from various species: human, mice, rat, zebrafish...

✓ Biomarkers identification & validation

- **Drug development** (molecular mechanism of action, toxicity, metabolism...)
- **Biomarkers** identification and validation
- **Gene expression** profiling
- **NGS** and DNA microarray validation
- Other applications in mind ? Please contact us (contact@anygenes.com)



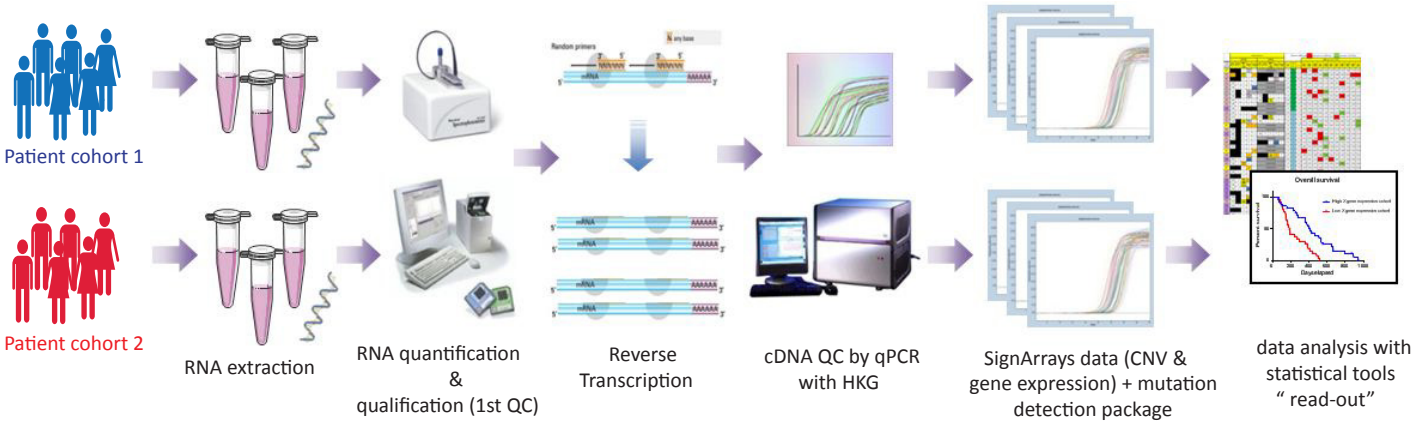


PATIENT STRATIFICATION and DATA ANALYSIS

✓ Patient stratification (CDx assays for precision medicine)

From preclinical and translational data to clinical applications.

Development of specific CDx (Companion Diagnostic) based on mechanism of action and biomarker signatures of your molecule to set up efficient strategy for patient stratification.



The most optimal strategy for ensuring developmental and clinical success of your molecules for precision medicine, and accelerate time to market

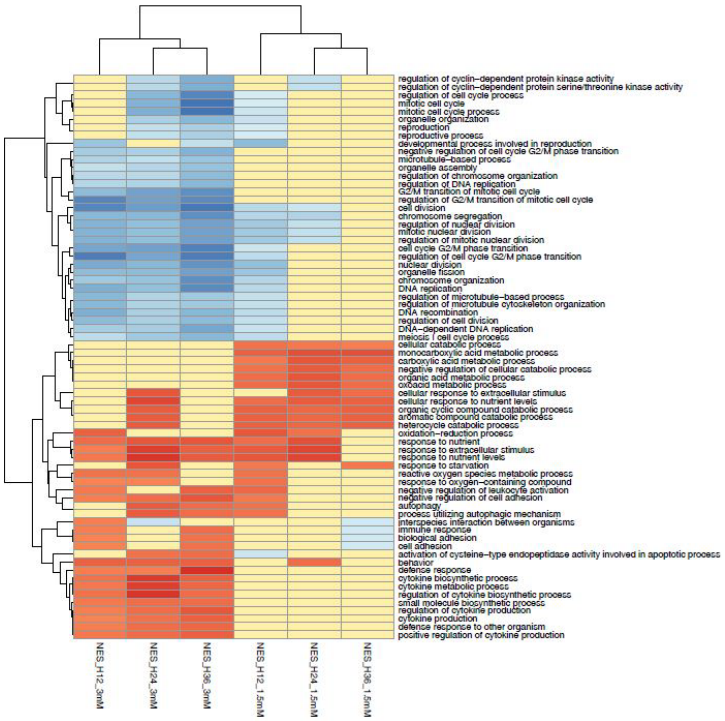
AnyGenes has a strong R&D collaborations on specific diseases with clinicians from hospitals.

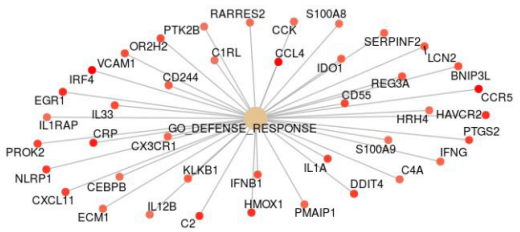
✓ Data analysis

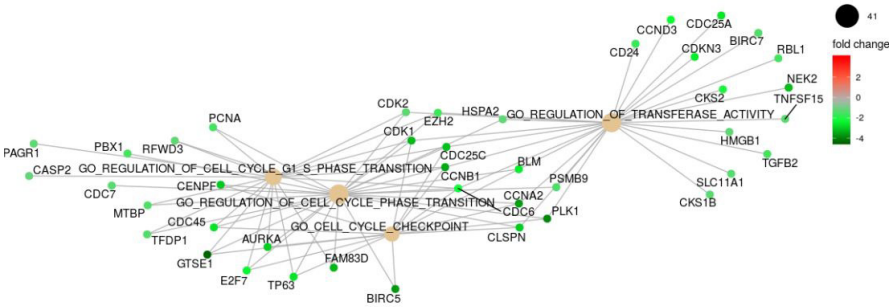
Specific bioinformatic tools developed by our data-mining team to get deep analysis with:

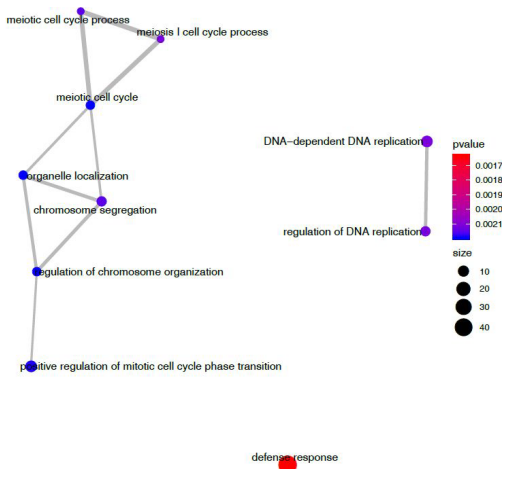
- The most likely signaling pathways targeted by your molecule, according to their p-value
- List of factors of each signaling pathway with their expression level (fold change)
- Drugs that have similar mechanism of action to your molecule, with their IC50, (**drug repositioning**)
- List of diseases targeted by these drugs, for new potential indications (**diseases-oriented repositioning**)

.. and much more !









EPIGENETIC AND METHYLATION ANALYSIS

Methylation studies

Analysis of epigenetic events by:
- quantifying **gene expression** for enzymes involved in **epigenetic** events by **qPCR arrays** (SignArrays®).
- quantifying a large panel of **LncRNA** (long non coding RNA)
- assessing **methylation** of CpG islets with **pyrosequencing** technology.

All our **qPCR** and **pyrosequencing** assays are validated on cDNA or gDNA provided from our large collection of tissues and cell lines.

From sample processing to **data analysis** and results report, we can manage all your **pyrosequencing** and **signaling pathways** projects.

Specific SingArrays for epigenetic analysis

To analyse **epigenetic** regulation **of signaling pathways**, including a **large panel of LncRNA**

Epigenetic Regulation 1 SignArrays® Ref: ER1H1

	1	2	3	4	5	6	7	8	9	10	11	12
A	BAZ1A	BAZ1B	BAZ2A	BAZ2B	BPTF	BRD1	BRD2	BRD3	BRD4	BRD7	BRD8	BRDT
B	BRPF1	BRPF3	BRWD1	BRWD3	WDR11	ACTL6A	ARID2	GADD45B	SATB1	SMARCC2	YY1	SMARCA1
C	RB1	CTCF	CBX1	CBX3	CBX4	CBX5	CBX6	CBX7	CBX8	CDYL	CDYL2	CHD1
D	CHD2	CHD3	CHD4	CHD5	CHD6	CHD7	CHD8	CHD9	KDM1A	KDM4A	KDM4E	KDM5B
E	KDM5C	KDM6B	DNMT1	DNMT3A	DNMT3B	TET2	ATF2	CIITA	CSRP2BP	ESCO1	ESCO2	HAT1
F	KAT2A	KAT2B	KAT5	KAT6A	KAT6B	KAT7	KAT8	NCOA1	NCOA3	NCOA6	RBBP4	RBBP7
G	HDAC1	HDAC10	HDAC11	HDAC2	HDAC3	HDAC4	HDAC5	HDAC6	HDAC7	HDAC8	HDAC9	ASH1L
H	PPIA	ACTB	TBP	B2M	RPLP0	HPRT1	TFRC	GUSB	POS CONT	POS CONT	NEG CONT	NEG CONT

Epigenetic Regulation 2 SignArrays® Ref: ER2H1

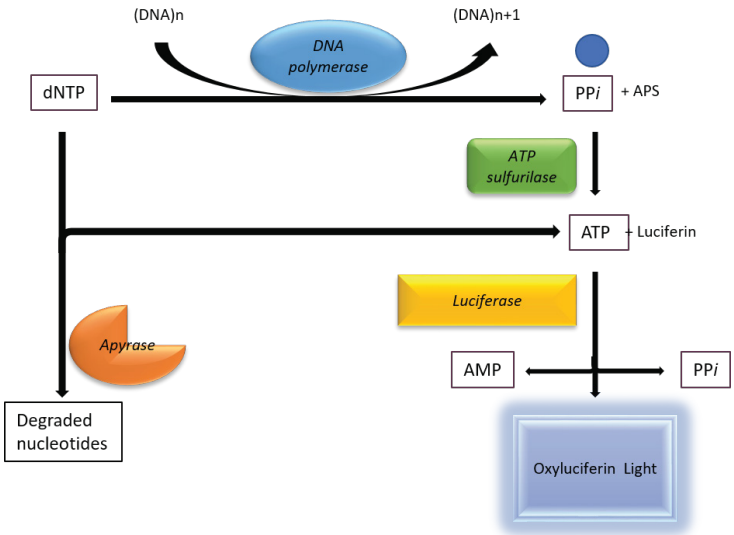
	1	2	3	4	5	6	7	8	9	10	11	12
A	CARM1	DOT1L	EHMT2	KMT2A	KMT2C	PRMT1	PRMT2	PRMT3	PRMT5	PRMT6	PRMT7	PRMT8
B	SETDB2	SMYD3	SUV39H1	ARID1B	ASH2L	ATF7IP	ATM	BCORL1	CBX2	CREBBP	EHMT1	EZH1
C	EZH2	HSPA1A	JARID2	KDM4B	KDM6A	KMT2D	MEN1	PRDM1	PRKCA	RBBP5	SIRT1	SMARCB1
D	TRRAP	WDR5	AURKA	AURKB	AURKC	NEK6	PAK1	RPS6KA3	RPS6KA5	DZIP3	MYSM1	RNF20
E	UBE2A	UBE2B	USP16	USP21	USP22	ING1	ING2	ING3	ING4	ING5	RING1	HINFP
F	MBD1	MBD2	MBD4	MECP2	MBD3	MTA1	MTA2	NAB2	SPEN	NSD1	PHF1	PHF13
G	PHF2	PHF21A	PHF3	PHF5A	ASXL2	BCOR	BMI1	CTBP1	CTBP2	PHC3	SUZ12	TRIM27
H	PPIA	ACTB	TBP	B2M	RPLP0	HPRT1	TFRC	GUSB	POS CONT	POS CONT	NEG CONT	NEG CONT

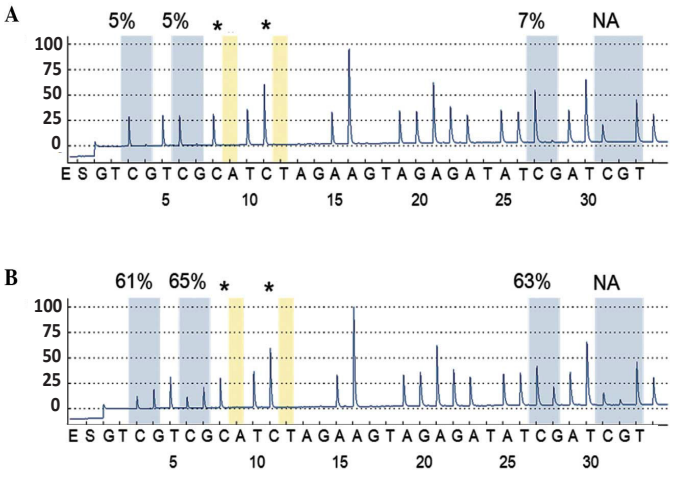
- Bromodomain Proteins
- Chromatin Remodelling
- Chromobox / Heterochromatin Protein 1 (HP1) Homologs
- Chromodomain / Helicase / DNA-Binding Domain (CHD) Protein
- DNA & Histone Demethylases
- DNA Methyltransferases
- DNA Modification
- Histone Acetyltransferases
- Histone Chaperone
- Histone Deacetylases
- SET Domain Proteins (Histone Methyltransferase Activity)
- Reference Genes
- Controls
- Histone Methytransferases
- Histone Modification
- Histone Phosphorylation
- Histone Ubiquitination
- Inhibitor of Growth (ING) Family Menbers
- Methyl-CpG DNA Binding Domain (MDB) Proteins
- Nucleosome-Remodeling & Histone Deacetylase (NuRD) Complex Components
- Plant Homeodomain (PHD) Proteins
- Polycomb Group Genes
- Reference Genes
- Controls

Pyrosequencing technology to explore DNA methylation

Each project is unique and needs to validate each step of pyrosequencing technology for specific hot spot with strict quality controls for high quality results.

Our team will help to set up specific **pyrosequencing** services for **DNA methylation** analysis.





✓ Team that you can trust

Explore the potential cost and time savings benefits of working with AnyGenes translational platform.

For more information, please contact us :
contact@anygenes.com

✓ Some references

- Louveau B et *al*. Baseline Genomic Features in BRAFV600-Mutated Metastatic Melanoma Patients Treated with BRAF Inhibitor + MEK Inhibitor in Routine Care. Cancers (2019) 11(8): 1203
- Reger de Moura C et *al*. Discoidin Domain Receptors: A promising target in melanoma. Pigment Cell Melanoma Res. (2019) 1-28
- Louveau B et *al*. A targeted genomic alteration analysis predicts survival of melanoma patients under BRAF inhibitors. Oncotarget (2019) 10(18): 1669-1687
- Torres RJ & Puig JG. Aicar effect in early neuronal development. Nucleos Nucleot Nucl. (2018) 37(5): 261-272
- Delyon J et *al*. STAT3 Mediates Nilotinib Response in KIT-Altered Melanoma: A Phase II Multicenter Trial of the French Skin Cancer Network. J Invest Dermatol. (2018) 138(1): 58-67
- Mgrditchian T et *al*. Targeting autophagy inhibits melanoma growth by enhancing NK cells infiltration in a CCL5-dependent manner. Proc Natl Acad Sci. (2017) 114(44): 9271-9279
- Buart S et *al*. Transcriptional response to hypoxic stress in melanoma and prognostic potential of GBE1 and BNIP3. Oncotarget (2017) 8(65): 108786-108801
- Broséus J et *al*. VEGF121, is predictor for survival in activated B-cell-like diffuse large B-cell lymphoma and is related to an immune response gene signature conserved in cancers. Oncotarget (2017) 8(53): 90808-90824
- Delyon J et *al*. PDE4D promotes FAK-mediated cell invasion in BRAF-mutated melanoma. Oncogene (2017) 36(23): 3252-3262
- Doucet M et *al*. Quality Matters: 2016 Annual Conference of the National Infrastructures for Biobanking. Biopreserv Biobank (2017) 15(3): 270-276
- Delyon J et *al*. Validation of a preclinical model for assessment of drug efficacy in melanoma. Oncotarget (2016) 7(11): 13069-13081
- Xu-Dubois YC et *al*. Markers of endothelial to mesenchymal transition: evidence for antibody-endothelium interaction during antibody mediated rejection in kidney recipients. J Am Soc Nephrol. (2016) 27(1): 324-332
- Mourah S et *al*. Dramatic Transient Improvement of Metastatic BRAFV600E-Mutated Langerhans Cell Sarcoma under treatment with Dabrafenib. Blood (2015) 126(24): 2649-2652
- Delyon J et *al*. EMMPRIN regulates β1 integrin-mediated adhesion through Kindlin-3 in human melanoma cells. Exp Dermatol. (2015) 24(6): 443-448
- Khayati F et *al*. EMMPRIN/CD147 is a novel coreceptor of VEGFR-2 mediating its activation by VEGF. Oncotarget (2015) 6(12): 9766-9780
- Ranchoux B et *al*. Endothelial-to-mesenchymal transition in pulmonary hypertension. Circulation (2015) 131(11): 1006-1018

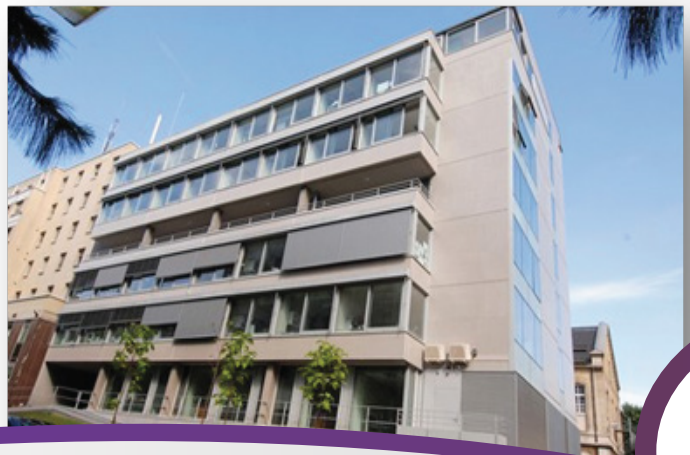
Some of our partners

Assistance Publique Hôpitaux de Paris
Luxembourg Institute of Health – Research Dedicated to Life
Hospital Universitario Ramón y Cajal – SaludMadrid

\+

Important list of biotech and pharma partners that we cannot disclose names with respect to confidentiality agreement

Inserm – Instituts thématiques – Institut national de la santé et de la recherche médicale
Gustave Roussy – Cancer Campus Grand Paris



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