CANACCORD Genuity

To us there are no foreign markets.™

Radius Health

Biotechnology

US Equity Research
2 February 2015

BUY
unchanged

PRICE TARGET US$70.00
unchanged

Price (1-Feb)	US$48.19
Ticker	RDUS-NASDAQ

52-Week Range (US$):	7.46 - 48.09
Avg Daily Vol (M) :	214.3
Shares Out. (M) :	29.7
Market Cap (US$M):	1,433

FYE Dec	2013A	2014E	2015E	2016E
Revenue (US$M)	0.0	0.0	0.0	82.1
EPS Adj&Dil (US$)	(3.97)	(54.05)	(3.06)	(1.52)

Quarterly Revenue	Q1	Q2	Q3	Q4
2013A	-	-	-	-
2014E	0.0A	0.0A	0.0A	0.0
2015E	0.0	0.0	0.0	0.0
2016E	-	-	-	-

Quarterly EPS Adj&Dil	Q1	Q2	Q3	Q4
2013A	-	-	-	-
2014E	(50.45)A	(2.22)A	(0.59)A	(0.79)
2015E	(0.68)	(0.88)	(0.75)	(0.75)
2016E	-	-	-	-

Source: FactSet

Radius is a biotechnology company focused on drugs for endocrine disorders, including osteoporosis.

John Newman, PhD | Canaccord Genuity Inc. (US) | JNewman@canaccordgenuity.com | 212.389.8042
Kevin Dai, PharmD, BCOP | Canaccord Genuity Inc. (US) | kdai@canaccordgenuity.com | 212.389.8043

Company Update

Minimal generic Forteo risk for abaloparatide based on FDA analysis

Generic Forteo filing unlikely, none after 13 years on market

We do not expect a generic filing or approval for Forteo in the near future due to its complicated *E. Coli* derived peptide formulation and our review of generic challenges for other FDA-approved peptide drugs. No ANDA filings have ever surfaced for Forteo, despite being approved since 2002 without NCE status, likely due to its peptide formulation from *E. Coli*. Therefore, we do not expect to see generic competition against Forteo, until at least the final patent expires in 2025, and perhaps later, which is a positive for Abaloparatide.

FDA analysis suggests high barrier for generic peptide drugs

Our deep dive analysis of FDA approved branded peptides (n=43) shows that only 23% (n=10) had ANDA filings, and only 14% (n=5) had generic approvals, reflecting the difficulty in producing bioequivalent peptides by generics companies. Additionally, 6 out of the 10 ANDA filings were synthetic peptides, which we believe are easier to produce than recombinant DNA from fermented bacteria/yeasts.

Recombinant therapeutics in *E. Coli* difficult to manufacture

Forteo is currently produced via *E. Coli*, which has likely deterred most generics companies due to complexity and cost, in our view. Interestingly, we found no generics approved for peptides produced via *E. Coli* (Glucagon, Insulin, Somavert and Gattex), and no ANDA filings. We believe this is attributed to 1) regulatory requirements for large scale industrial production with *E. Coli*, including FDA guidelines and local Biosafety Authority; 2) high cost of peptide production via fermentation; and 3) lack of specific FDA guidance for demonstrating bioequivalence to Forteo. We believe it is unlikely that an ANDA filing via paragraph 4 will surface before final patent expiration for Forteo in 2025.

Maintain $800M peak sales estimate for Abaloparatide, expect approval mid-2016

We estimate peak US sales of ~$800M for Forteo by 2022 and assume an on time FDA approval by mid-2016. Our estimate assumes 3.9 million patients by 2022, a pricing of ~$2,000 per month for the drug, and a conservative ~1.9% market share with 50% drug adherence to reach out estimate. Additionally, the company is also working on a transdermal microneedle patch for potential use as a short wear-time formulation, which could be attractive to both patients and physicians if PK analysis reflects similar results, specifically AUC. We await further details from the company in rolling out the final transdermal patch configuration, possibly sometime in 2015, as a potential value driver for the stock.

Figure 1: History of Peptides and ANDA filing, Tentative Approvals, and Full Approvals

Name	Brand name	FDA approval date	Exclusivity Type	Exclusivity Expiration	Description	ANDA filing?	Time till ANDA Filing (YRS)	tentative approval?	Time till Tentative approval (YRS)	full approval?	Company	Approval Date / Rating	Time till Ful lapproval (YRS)
Aliskiren	Tekturna	3/5/2007	NCE	3/5/2012	non-peptide analogue	12/13/2013	6.8						
Bivalirudin	Angiomax	12/15/2000	NCE	12/15/2005	Synthetic peptide	9/1/2009	8.7	9/23/2013	12.8				
Choriogonadotropin alfa	Ovidrel	9/20/2000	new dosage form		Recombinant human Chorionic Gonadotropin								
Corticotropin	Acthar	7/3/1950	NCE	n/a	sterile preparation of "highly purified" adrenocorticotropic hormone								
Cosyntropin	Cortrosyn	4/22/1970	NCE	n/a	Synthetic polypeptide	yes				yes	Sandoz Mylan	6/29/2012 AP 12/23/2009 AP	42.2 39.7
Daptomycin	Cubicin	9/12/2003	NCE	9/12/2008	lipopeptide antibacteria from fermented *Streptomyces roseosporus*	11/19/2008	5.2	3/15/2013	9.5	yes	Hospira	9/12/2014 AP	11.0
Enfuvirtide	Fuzeon	3/13/2003	NCE	3/13/2008	Synthetic peptide								
Eptifibatide	Integrilin	5/18/1998	NCE	5/18/2003	Synthetic peptide	9/30/2008	10.4						
Exenatide	Byetta	4/28/2005	NCE	4/28/2010	Synthetic peptide	6/11/2014	9.1						
Exenatide	Bydureon	1/27/2012	NCE	1/27/2017	Synthetic peptide	6/11/2014	2.4						
Fibrinolysin	ELASE-CHLOROMYCETIN	4/1/1964	NCE	n/a	Enzyme from bovine plasma								
Follitropin Alpha/Beta	Gonal	9/29/1997	NCE	9/29/2002	human follicle stimulating hormone (FSH) preparation of recombinant DNA origin - chinese hamster ovary cells			2/26/2002	4.4				
Glatiramer Acetate	Copaxone	12/20/1996	NCE	12/20/2001	synthetic polypeptides	12/27/2007	11.0						
Glucagon recombinant	Glucagon	9/11/1998	new dosage form		E. Coli polypeptide hormone								
Hyaluronidase	Amphadase	10/26/2004	NCE	10/26/2009	purified bovine testicular hyaluronidase, a protein enzyme								
Insulin	Afrezza	6/27/2014	new formulation		E. Coli polypeptide hormone								
Insulin Glusine recombinant	Apidra	4/16/2004	NCE	4/16/2009	E. Coli polypeptide hormone								
Insulin Glargine	Basaglar	8/18/2014	new formulation		E. Coli polypeptide hormone								
Insulin recombinant human	Exubera	1/27/2006	new dosage form		E. Coli polypeptide hormone								
Insulin Lispro	Humalog	6/14/1996	NCE		E. Coli polypeptide hormone								
Insulin recombinant human	Humulin BR	4/28/1986	new dosage form		E. Coli polypeptide hormone								
Insulin glargine recombinant	Lantus	4/20/2000	NCE	4/20/2005	E. Coli polypeptide hormone								
Insulin recombinant human	Novolin R	6/25/1991	new formulation		E. Coli polypeptide hormone								
Insulin Aspart Recombinant	Novolog	6/7/2000	NCE	6/7/2005	E. Coli polypeptide hormone								

Source: FDA.gov

Figure 2: History of Peptides and ANDA filing, Tentative Approvals, and Full Approvals

			Exclusivity										
Name	Brand name	FDA approval date	Type	Expiration	Description	ANDA filing?	Time till ANDA Filing (YRS)	tentative approval?	Time till Tentative approval (YRS)	full approval?	Company	Approval Date / Rating	Time till Ful lapproval (YRS)
Leuprolide acetate	Lupron	3/30/1995	new formulation		synthetic nonapeptide analog of naturally occurring gonadotropin releasing hormone	Yes				Yes	Sandoz Teva Sun Pharma	8/4/1998 AP 10/25/2000 AP 3/9/2009 AP	3.3 5.6 13.9
Liraglutide	Victoza	1/25/2010	NCE	1/25/2015	expression of recombinant DNA in *Saccharomyces cerevisiae*								
Liraglutide	Saxenda	12/23/2014	new indication		expression of recombinant DNA in *Saccharomyces cerevisiae*								
Lucinactant	Surfaxin	3/6/2012	NCE	3/6/2012	synthetic formulation consisting of phospholipids, a fatty acid, and sinapultide (KL4 peptide), a 21-amino acid hydrophobic synthetic peptide								
Lutropin alfa	Luveris	10/8/2004	new dosage form	10/8/2009	recombinant human luteinizing hormone								
Mecasermin	Increlex	8/30/2005	NCE	8/30/2010	recombinant DNA of human insulin-like growth factor 1 (rhIGF-1)								
Nesiritide		8/10/2001	NCE	8/10/2006	purified preparation of human B-type natriuretic peptide (hBNP), and is manufactured from E. coli								
Oxytocin	Oxytocin	7/9/1980	new formulation		Synthetic oxytocin					yes	Hikma Pharm Sagent	2/13/2013 AP 10/29/2014 AP	32.6 34.3
Pegaptanib	Macugan	12/17/2004	NCE	12/17/2009	covalent conjugate of an oligonucleotide , to which two polyethylene glycol (PEG) units are covalently attached								
Pegvisomant	Somavert	3/25/2003	NCE	3/25/2008	recombinant DNA origin or E. Coli								
Pramlintide	Symlin	3/16/2005	NCE	3/16/2010	Synthetic analog of human amylin (neuroendocrine hormone)								
Secretin	Chirhostim	4/9/2004	NCE	4/9/2009	Synthetic human secretin peptide								
Albumin Human	Optison	12/31/1997	new dosage form		plasma of US donors								
Teduglutide	Gattex	12/21/2012	NCE	12/21/2016	Recombinant E. Coli								
Teriparatide	Forteo	11/26/2002	new dosage form		Recombinant E. Coli								
Tesamorelin	Egrifta	11/10/2010	NCE	11/10/2015	Synthetic peptide precursos of tesamorelin acetate (acetate salt) - analogue of human GRF								
Thyrotropin Alfa	Thyrogen	11/30/1998	NCE	11/30/2003	genetically modified Chinese hamster ovary cell line.								
Urofollitropin	Bravelle	5/6/2002	new dosage form		hormone purified from urine of postmenopausal women - peptide								
Enoxaparin	Lovenox	3/29/1993	NCE	3/29/1998	alkaline depolymerization of heparin benzyl ester derived from porcine intestinal mucosa	12/7/2006	13.7			Yes	Sandoz Amphastar	7/23/2010 AP 9/19/2011 AP	17.3 18.5

Source: FDA.gov

Figure 3: RDUS income statement

Revenues	2013A	1Q14A	2Q14A	3Q14A	4Q14E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
abaloparatide - US								82,120	239,867	357,419	465,944	583,042
abaloparatide - Ex-US								-	90,548	204,751	251,503	298,717
Total								**82,120**	**330,415**	**562,170**	**717,447**	**881,759**
Income Statement	**2013A**	**1Q14A**	**2Q14A**	**3Q14A**	**4Q14E**	**2014E**	**2015E**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Total Revenue	-	-	-	-	-	-	-	82,120	264,315	457,747	594,210	738,375
COGS	-	-	-	-	-	-	-	16,424	52,863	91,549	118,842	147,675
Gross Profit	-	-	-	-	-	-	-	65,696	211,452	366,198	475,368	590,700
Operating Expenses												
Research and development	60,536	9,717	10,618	13,817	14,926	49,078	74,464	59,354	55,796	65,122	84,196	117,620
abaloparatide-SC	45,977	8,107	9,728	10,132	12,158	40,126	27,052	18,937	13,256	13,256	13,256	13,256
abaloparatide-TD	11,459	185	278	523	785	1,770	31,380	21,966	15,376	10,763	7,534	5,274
RAD1901	-	-		1,027	1,000	2,027	12,100	14,520	23,232	37,171	59,474	95,158
RAD140	-	-				-	-					
other	3,100	1,425	1,710	819	983	4,937	3,932	3,932	3,932	3,932	3,932	3,932
General and administrative	6,829	2,139	3,070	2,836	2,700	10,745	13,200	57,484	85,902	102,993	133,697	166,134
Total Operating Expense	67,365	11,856	13,688	16,653	17,626	59,823	87,664	116,838	141,698	168,115	217,893	283,754
EBITDA												
Operating income	(67,365)	(11,856)	(13,688)	(16,653)	(17,626)	(59,823)	(87,664)	(51,142)	69,754	198,083	257,475	306,946
Other income (expense), net	9,085	(2,233)	1,727	(802)	(802)	(2,110)	(5,824)	(2,110)	(5,824)	(2,110)	(5,824)	(2,110)
Loss on retirement of note payable			(203)									
Interest (expense) income, net	(2,410)	(399)	(445)	24	24	(796)	(1,544)	(796)	(1,544)	(796)	(1,544)	(796)
Accretion of preferred stock		(4,969)	(4,031)									
Pre-tax income (GAAP)	(60,690)	(19,457)	(16,640)	(17,431)	(18,404)	(71,932)	(95,032)	(54,048)	62,386	195,177	250,107	304,040
Pre-tax income (non-GAAP)												
Taxes (GAAP)	-	-	-	-	-	-	-	-	23,083	72,215	92,540	112,495
Tax rate (GAAP)	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
Net Income (GAAP)	(60,690)	(19,457)	(16,640)	(17,431)	(18,404)	(71,932)	(95,032)	(54,048)	39,303	122,961	157,568	191,545
GAAP EPS (diluted)	**($3.97)**	**($50.45)**	**($2.22)**	**($0.59)**	**($0.79)**	**($54.05)**	**($3.06)**	**($1.52)**	**$1.05**	**$3.14**	**$3.83**	**$4.43**
Diluted shares outstanding	15,278	386	7,500	29,746	23,200	15,208	31,539	35,562	37,340	39,207	41,167	43,226

Source: Canaccord Genuity Estimates

Figure 4: RDUS valuation

Product	Peak Sales ($MM)	Year	NPV at launch	Estimated launch	Time to launch	Probability Adjustment	Current Value ($MM)	Scenario probability	Value / Share (NPV)	Value / Share (EV/Sales)
abaloparatide										
US	$822	2022	$1,364	6/1/2016	1.3	85%	$955	100%	$33	$47
Ex-US - co-promote	$346	2021	$429	1/1/2017	1.9	85%	$268	50%	$5	$11
Ex-US - royalty	$346	2021	$201	1/1/2017	1.9	85%	$138	50%	$2	$11
Total abaloparatide							**$1,224**		**$40**	**$69**
RAD-1901										
US	$467	2023	$670			35%	$234		$8	$10
Ex-US	$427	2023	$188			35%	$66		$0	$9
Total RAD-1901							**$300**		**$8**	**$19**
Total Product Value							$1,224		$48	$87
Cash							70		$2	$2
Total Equity Value							**1,294**		**$50**	**$90**
Shares Outstanding (MM)							29			
									Average	$70

Risk-Free Rate	3.0%
Beta	1.8
Risk Premium	5%
Discount Rate	12%
EV/Sales	4.25

Insert figure here

Source: Canaccord Genuity Estimates

Appendix: Important Disclosures

Analyst Certification

Each authoring analyst of Canaccord Genuity whose name appears on the front page of this research hereby certifies that (i) the recommendations and opinions expressed in this research accurately reflect the authoring analyst's personal, independent and objective views about any and all of the designated investments or relevant issuers discussed herein that are within such authoring analyst's coverage universe and (ii) no part of the authoring analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the authoring analyst in the research.

Analysts employed outside the US are not registered as research analysts with FINRA. These analysts may not be associated persons of Canaccord Genuity Inc. and therefore may not be subject to the NASD Rule 2711 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Compendium Report

If this report covers six or more subject companies, it is a compendium report and Canaccord Genuity and its affiliated companies hereby direct the reader to the specific disclosures related to the subject companies discussed in this report, which may be obtained at the following website (provided as a hyperlink if this report is being read electronically) http://disclosures.canaccordgenuity.com/EN/Pages/default.aspx; or by sending a request to Canaccord Genuity Corp. Research, Attn: Disclosures, P.O. Box 10337 Pacific Centre, 2200-609 Granville Street, Vancouver, BC, Canada V7Y 1H2; or by sending a request by email to disclosures@canaccordgenuity.com. The reader may also obtain a copy of Canaccord Genuity's policies and procedures regarding the dissemination of research by following the steps outlined above.

Target Price / Valuation Methodology:

Radius Health - RDUS

Our $70 price target is based on the average of our probability adjusted NPV and EV/S methodologies.

Risks to achieving Target Price / Valuation:

Radius Health - RDUS

Risks to our outlook and price target include the following: the Phase 3 study for abaloparatide in osteoporosis may be negative, or fail to meet investor expectations, resulting in downside to shares and our price target. Also, Phase 3 data may be positive in terms of efficacy, but show an unexpected safety signal, also resulting in downside to our price target. Antibody formation was been seen in Phase 2 studies, with one patient showing potential evidence of neutralizing antibodies. Even assuming positive Phase 3 data for subcutaneous abaloparatide in osteoporosis, FDA approval may be delayed or may not occur at all, also resulting in downside to shares and our price target. FDA may also grant approval, but require large, lengthy and expensive post-approval studies, which could also result in downside to shares and our price target. Clinical data from other osteoporosis products including anti-sclerostin antibodies from Amgen, Merck, Eli Lilly and Novartis could be viewed as superior to abaloparatide, pressuring shares. Competition from existing and new osteoporosis products could also result in lower revenues that expected, leading to downside to our estimates and the share price. Although unlikely, a paragraph 4 challenge could be filed against Lilly's Forteo, a molecule closely related to abaloparatide, which investors may interpret as increasing risk for abaloparatide, and pressuring Radius shares. Forteo was approved as an NDA, where the ANDA pathway is well established. Even though Forteo is essentially a biologic, since it is a peptide, it is feasible although unlikely that a generic challenger could emerge. FDA has approved a generic version of Lovenox, a biologic approved via the NDA pathway, although the process took many years. If a generic version of Forteo were to reach the market, usage of abaloparatide could decline, resulting in downside to our estimates and price target. Also, if FDA were to approve a generic version of Copaxone, a peptide used to treat multiple sclerosis, investors may see increased risk of a generic challenge and approval for abaloparatide, as both products are classified as NDA filings for biologic peptides. A transdermal microneedle formulation for abaloparatide may not be feasible, which investors may view as negative for life cycle management and commercial competitive positioning for Radius, pressuring shares. Even if a microneedle formulation can be developed to show equal efficacy to the subcutaneous formulation, FDA may require a full clinical study versus a bridging study, which would require additional funding and time to approval.

Distribution of Ratings:

Global Stock Ratings (as of 02/02/15)

Rating	Coverage Universe		IB Clients
	#	%	%
Buy	595	58.16%	32.61%
Hold	332	32.45%	14.76%
Sell	45	4.40%	2.22%
Speculative Buy	51	4.99%	58.82%
	1023*	100.0%	

*Total includes stocks that are Under Review

Canaccord Genuity Ratings System

BUY: The stock is expected to generate risk-adjusted returns of over 10% during the next 12 months.

HOLD: The stock is expected to generate risk-adjusted returns of 0-10% during the next 12 months.

SELL: The stock is expected to generate negative risk-adjusted returns during the next 12 months.

NOT RATED: Canaccord Genuity does not provide research coverage of the relevant issuer.

"Risk-adjusted return" refers to the expected return in relation to the amount of risk associated with the designated investment or the relevant issuer.

Risk Qualifier

SPECULATIVE: Stocks bear significantly higher risk that typically cannot be valued by normal fundamental criteria. Investments in the stock may result in material loss.

Canaccord Genuity Company-Specific Disclosures (as of date of this publication)

Radius Health currently is, or in the past 12 months was, a client of Canaccord Genuity or its affiliated companies. During this period, Canaccord Genuity or its affiliated companies provided investment banking services to Radius Health.

In the past 12 months, Canaccord Genuity or its affiliated companies have received compensation for Corporate Finance/Investment Banking services from Radius Health .

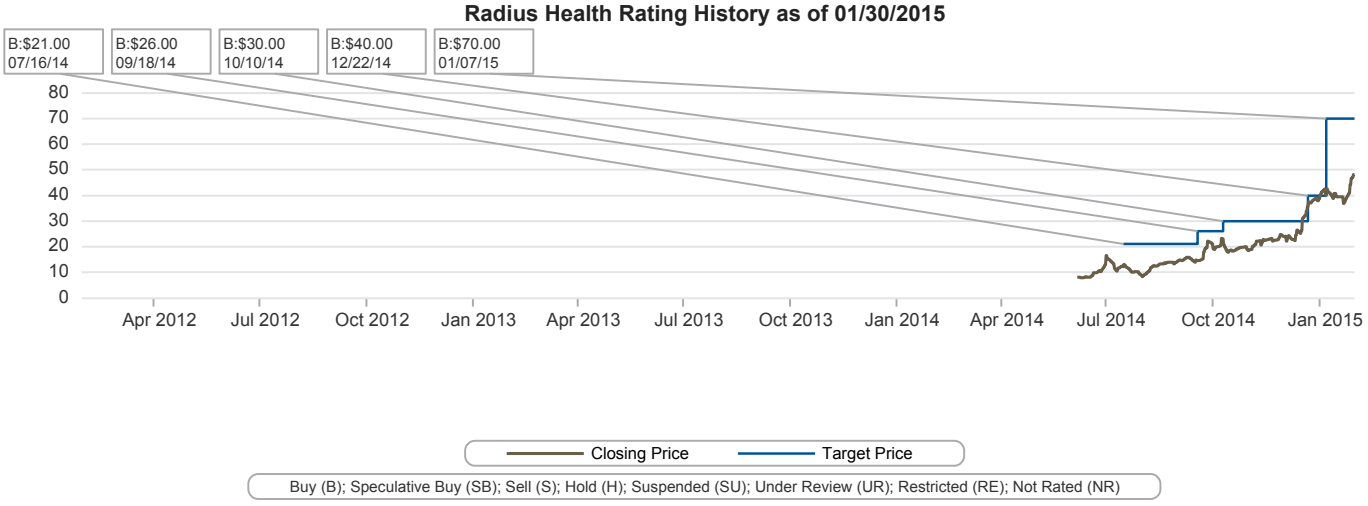
In the past 12 months, Canaccord Genuity or any of its affiliated companies have been lead manager, co-lead manager or co-manager of a public offering of securities of Radius Health or any publicly disclosed offer of securities of Radius Health or in any related derivatives.

Canaccord Genuity or one or more of its affiliated companies is a market maker or liquidity provider in the securities of Radius Health or in any related derivatives.

Canaccord Genuity or one or more of its affiliated companies intend to seek or expect to receive compensation for Corporate Finance/ Investment Banking services from Radius Health in the next six months.

An analyst has visited the material operations of Radius Health. No payment was received for the related travel costs.

Radius Health Rating History as of 01/30/2015



General Disclosures

"Canaccord Genuity" is the business name used by certain wholly owned subsidiaries of Canaccord Genuity Group Inc., including Canaccord Genuity Inc., Canaccord Genuity Limited, Canaccord Genuity Corp., and Canaccord Genuity (Australia) Limited, an affiliated company that is 50%-owned by Canaccord Genuity Group Inc.

The authoring analysts who are responsible for the preparation of this research are employed by Canaccord Genuity Corp. a Canadian broker-dealer with principal offices located in Vancouver, Calgary, Toronto, Montreal, or Canaccord Genuity Inc., a US broker-dealer with principal offices located in New York, Boston, San Francisco and Houston, or Canaccord Genuity Limited., a UK broker-dealer with principal offices located in London (UK) and Dublin (Ireland), or Canaccord Genuity (Australia) Limited, an Australian broker-dealer with principal offices located in Sydney and Melbourne.

The authoring analysts who are responsible for the preparation of this research have received (or will receive) compensation based upon (among other factors) the Corporate Finance/Investment Banking revenues and general profits of Canaccord Genuity. However, such

authoring analysts have not received, and will not receive, compensation that is directly based upon or linked to one or more specific Corporate Finance/Investment Banking activities, or to recommendations contained in the research.

Canaccord Genuity and its affiliated companies may have a Corporate Finance/Investment Banking or other relationship with the issuer that is the subject of this research and may trade in any of the designated investments mentioned herein either for their own account or the accounts of their customers, in good faith or in the normal course of market making. Accordingly, Canaccord Genuity or their affiliated companies, principals or employees (other than the authoring analyst(s) who prepared this research) may at any time have a long or short position in any such designated investments, related designated investments or in options, futures or other derivative instruments based thereon.

Some regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of research. This research has been prepared in accordance with Canaccord Genuity's policy on managing conflicts of interest, and information barriers or firewalls have been used where appropriate. Canaccord Genuity's policy is available upon request.

The information contained in this research has been compiled by Canaccord Genuity from sources believed to be reliable, but (with the exception of the information about Canaccord Genuity) no representation or warranty, express or implied, is made by Canaccord Genuity, its affiliated companies or any other person as to its fairness, accuracy, completeness or correctness. Canaccord Genuity has not independently verified the facts, assumptions, and estimates contained herein. All estimates, opinions and other information contained in this research constitute Canaccord Genuity's judgement as of the date of this research, are subject to change without notice and are provided in good faith but without legal responsibility or liability.

Canaccord Genuity's salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and our proprietary trading desk that reflect opinions that are contrary to the opinions expressed in this research. Canaccord Genuity's affiliates, principal trading desk, and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

This research is provided for information purposes only and does not constitute an offer or solicitation to buy or sell any designated investments discussed herein in any jurisdiction where such offer or solicitation would be prohibited. As a result, the designated investments discussed in this research may not be eligible for sale in some jurisdictions. This research is not, and under no circumstances should be construed as, a solicitation to act as a securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. This material is prepared for general circulation to clients and does not have regard to the investment objectives, financial situation or particular needs of any particular person. Investors should obtain advice based on their own individual circumstances before making an investment decision. To the fullest extent permitted by law, none of Canaccord Genuity, its affiliated companies or any other person accepts any liability whatsoever for any direct or consequential loss arising from or relating to any use of the information contained in this research.

For Canadian Residents:

This research has been approved by Canaccord Genuity Corp., which accepts sole responsibility for this research and its dissemination in Canada. Canadian clients wishing to effect transactions in any designated investment discussed should do so through a qualified salesperson of Canaccord Genuity Corp. in their particular province or territory.

For United States Residents:

Canaccord Genuity Inc., a US registered broker-dealer, accepts responsibility for this research and its dissemination in the United States. This research is intended for distribution in the United States only to certain US institutional investors. US clients wishing to effect transactions in any designated investment discussed should do so through a qualified salesperson of Canaccord Genuity Inc. Analysts employed outside the US, as specifically indicated elsewhere in this report, are not registered as research analysts with FINRA. These analysts may not be associated persons of Canaccord Genuity Inc. and therefore may not be subject to the NASD Rule 2711 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

For United Kingdom and European Residents:

This research is distributed in the United Kingdom and elsewhere Europe, as third party research by Canaccord Genuity Limited, which is authorized and regulated by the Financial Conduct Authority. This research is for distribution only to persons who are Eligible Counterparties or Professional Clients only and is exempt from the general restrictions in section 21 of the Financial Services and Markets Act 2000 on the communication of invitations or inducements to engage in investment activity on the grounds that it is being distributed in the United Kingdom only to persons of a kind described in Article 19(5) (Investment Professionals) and 49(2) (High Net Worth companies, unincorporated associations etc) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended). It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons. This material is not for distribution in the United Kingdom or elsewhere in Europe to retail clients, as defined under the rules of the Financial Conduct Authority.

For Jersey, Guernsey and Isle of Man Residents:

This research is sent to you by Canaccord Genuity Wealth (International) Limited (CGWI) for information purposes and is not to be construed as a solicitation or an offer to purchase or sell investments or related financial instruments. This research has been produced by an affiliate of CGWI for circulation to its institutional clients and also CGWI. Its contents have been approved by CGWI and we are providing it to you on the basis that we believe it to be of interest to you. This statement should be read in conjunction with your client

agreement, CGWI's current terms of business and the other disclosures and disclaimers contained within this research. If you are in any doubt, you should consult your financial adviser.

CGWI is licensed and regulated by the Guernsey Financial Services Commission, the Jersey Financial Services Commission and the Isle of Man Financial Supervision Commission. CGWI is registered in Guernsey and is a wholly owned subsidiary of Canaccord Genuity Group Inc.

For Australian Residents:

This research is distributed in Australia by Canaccord Genuity (Australia) Limited ABN 19 075 071 466 holder of AFS Licence No 234666. To the extent that this research contains any advice, this is limited to general advice only. Recipients should take into account their own personal circumstances before making an investment decision. Clients wishing to effect any transactions in any financial products discussed in the research should do so through a qualified representative of Canaccord Genuity (Australia) Limited. Canaccord Genuity Wealth Management is a division of Canaccord Genuity (Australia) Limited.

For Singapore Residents:

This research is distributed pursuant to 32C of the Financial Advisers under an arrangement between each of the Canaccord Genuity entities that publish research and Canaccord Genuity Singapore Pte. Ltd who are an exempt financial adviser under section 23(1)(d) of the Financial Advisers Act. This research is only intended for persons who fall within the definition of accredited investor, expert investor or institutional investor as defined under section 4A of the Securities and Futures Act It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons. Recipients of this report can contact Canaccord Genuity Singapore Pte. Ltd. (Contact Person: Tom Gunnersen's tel # is +852 3919 2561) in respect of any matters arising from, or in connection with, the [analyses or report].

For Hong Kong Residents:

This research is distributed in Hong Kong by Canaccord Genuity (Hong Kong) Limited who is licensed by the Securities and Futures Commission. This research is only intended for persons who fall within the definition of professional investor as defined in the Securities and Futures Ordinance. It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons. Recipients of this report can contact Canaccord Genuity (Hong Kong). Ltd. (Contact Person: Tom Gunnersen's tel # is +852 3919 2561) in respect of any matters arising from, or in connection with, the research.

Additional information is available on request.