Q+A

Quantum Genomics

Equity Research from **Kepler Cheuvreux**

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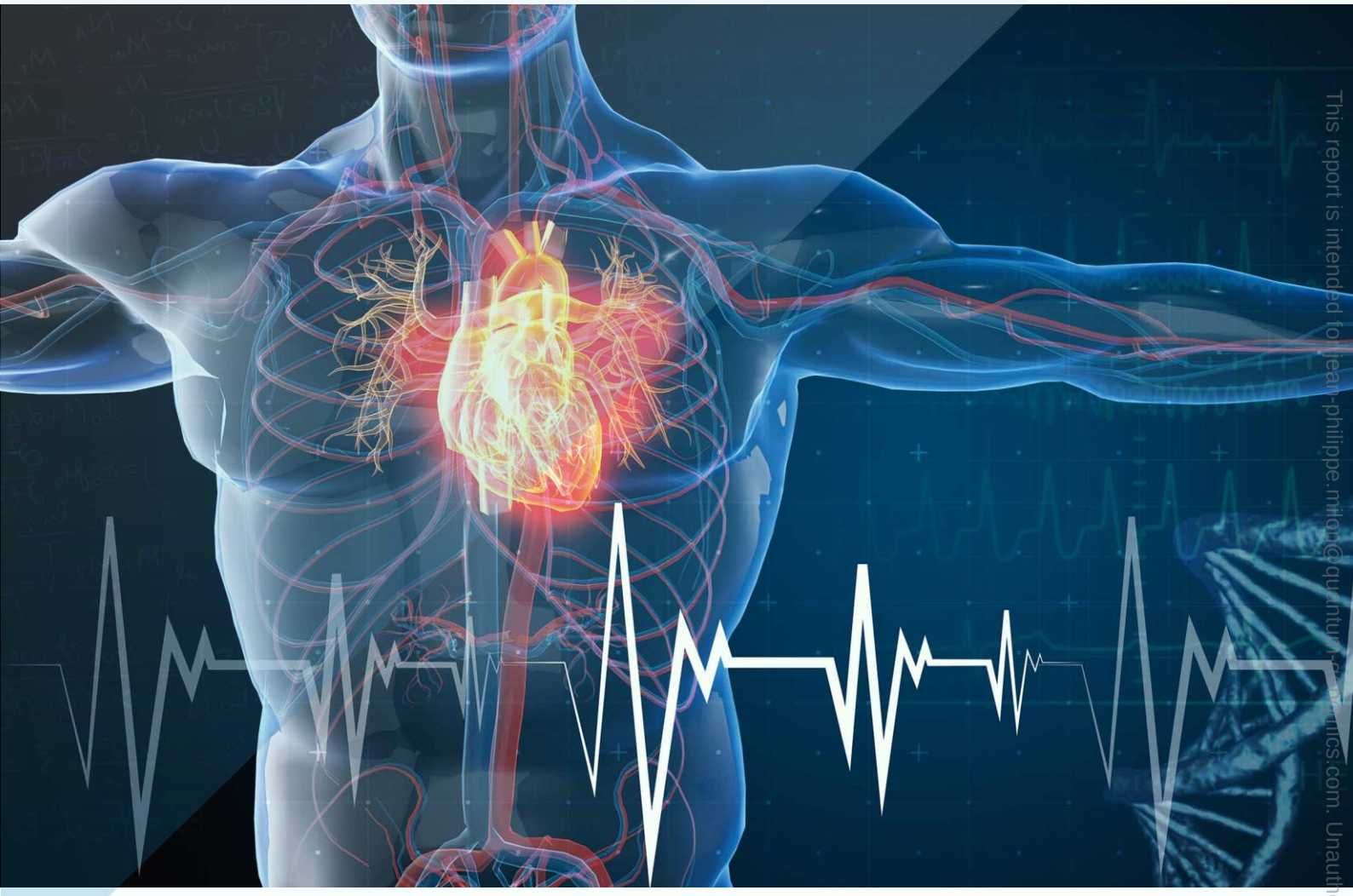
France | Pharma & biotech

MCap: EUR106.7m



Q. Could Quantum Genomics be successful with firibastat?

Since 2019, Quantum Genomics (QG) has prepared and launched two phase III trials, FRESH and RE-FRESH, evaluating firibastat in hard-to-treat/resistant hypertension (rHTN) patients. While QG was planning studies on hypertension, it also conducted a phase IIb trial with firibastat in prevention of heart failure post myocardial infarction (HF post MI) which is now drawing to a close. In addition, QG had worked on the business development of firibastat by signing several regional partnerships. The newsflow was positive over 2019/20. The pandemic had little impact on QG's operations and it was able to refinance to sustain its clinical activity in 2020. While we are waiting for more positive news on the stock, the share price is struggling, down by 20% YTD. The announcement of the end of its partnerships for firibastat with Qilu Pharmaceuticals in China is part of the reason why. Nevertheless, we anticipate significant newsflow in H2. Accordingly, we wonder whether QG has what it takes for firibastat to be successful.

See our answer inside…

Buy

Target Price:	EUR8.70
Current Price:	EUR4.00
Up/downside:	117.5%
Change in TP:	none
Change in Adj.	NM- 21E/up nm 22E

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Biographies at the end of this document

Q+A in 1 minute

Change in Sales: -92.4% 21E/up nm
Change in Adj EBIT: NM- 21E/NM+ 22E

Bloomberg: ALQGC FP	Reuters: ALQGC.PA
Free float	87.9%
Avg. daily volume (EURm)	0.5
YTD abs performance	-18.4%
52-week high/low (EUR)	5.54/2.20

FY to 31/12 (EUR)	12/20	12/21E	12/22E
Sales (m)	2.3	3.4	41.0
EBITDA adj (m)	-13.5	-26.2	16.1
EBIT adj (m)	-13.9	-26.4	15.9
Net profit adj (m)	-11.5	-24.8	14.5
Net financial debt (m)	-27.2	-7.6	-22.6
FCF (m)	-12.4	-22.5	14.9
EPS adj. and ful. dil.	-0.43	-0.93	0.54
Consensus EPS	-0.43	-0.39	-0.20
Net dividend	0.00	0.00	0.00
FY to 31/12	**12/20**	**12/21E**	**12/22E**
P/E adj and ful. dil.	na	na	7.4
EV/EBITDA	na	na	5.2
EV/EBIT	na	na	5.3
FCF yield	-14.6%	-21.1%	14.0%
Dividend yield	0.0%	0.0%	0.0%
ND(F+IFRS16)/EBITDA	2.0	0.3	-1.4
Gearing	-100.1%	-329.2%	-134.5%
ROIC	na	na	na
EV/IC	na	na	na

A. Yes, backed by a supportive market and positive read-out from previous studies

- Quantum Genomics' (QG) share price is down by c. 20% YTD, while most of the company's newsflow was positive over 2020. The company is due to announce several major clinical milestones in 2021. We believe that QG's prospects with firibastat look brighter.
- To support our view, we have reviewed the market in which the company operates. The drug therapy market for hypertension (HTN) and heart failure (HF) is worth more than USD17bn worldwide. In the HTN market, we see little innovation and great pressure from generics, while the HF market has a lot more activity and innovation. QG is targeting specific patients (rHTN and post-MI HF) in which there are no approved competitors and few clinical candidates, which is why we believe there are low barriers to entry for QG and there is sufficient room for firibastat.
- In addition, we review phase II data from the NEW-HOPE study in HTN patients and conclude that firibastat's read-out was positive, giving us confidence in the forthcoming phase III results (Q4). Firibastat's development in HF is backed by preclinical studies showing good potential efficacy as well as a good safety profile demonstrated by previous studies.
- We take another look at patients who are eligible for firibastat either with resistant/hard-to-treat HTN or HF post MI. We forecast peak sales up to EUR2.0bn by 2033 in HTN, and up to EUR900m by 2035 in HF.
- We confirm our outlook for Quantum Genomics, as we reaffirm the great potential for firibastat. We reiterate our Buy rating. In addition, we adjust our model (patient population, value sharing with partners). Therefore, we keep our TP of EUR8.7.

Research Framework

Investment case

- Quantum Genomics has an innovative approach: targeting the brain to treat cardiovascular pathologies. Its lead product, firibastat, inhibits a brain target (brain aminopeptidase A), leading to a reduction in blood pressure.
- Firibastat, is currently in phase III for the treatment of resistant hypertension (HTN), and in phase IIb in Heart Failure (HF). QG has already demonstrated positive results from a phase IIb trial in HTN, especially in hard-to-treat patients.
- EUR2.0bn peak sales can be expected in HTN in 2033E. HF is an attractive area for big pharmas (e.g. Novartis's Entresto, USD2.5bn sales) where firibastat could reach EUR900m of sales (2034E).

Catalysts

- Phase IIb preliminary results in HF (Firibastat) due in Q3.
- Potential additional out-licensing deal(s) on Firibastat in difficult-to-treat/resistant HTN.
- Ph. III FRESH preliminary results in Q4 2021.

Valuation methodology

- Our rNPV-based model yields a TP of EUR8.7.
- We focus our rNPV of Firibastat based on two clinical programmes: HTN (47% likelihood of approval,LoA) and HF (11% LoA). We apply a discount rate of 15%, in line with our biotech universe.

Risks to our rating

- Failure in clinical trials, mostly in HTN as it represents 87% of our TP.
- Delays for ongoing clinical trials (FRESH/REFRESH).
- Lack of partner for pursuing firibastat's development in HF if phase IIb (QUORUM) would be positive.

Company description

Quantum Genomics is a biopharmaceutical company specialising in the development of a new class of cardiovascular drugs based on brain aminopeptidase A inhibition. Its lead candidate, firibastat, is about to start phase III trials to treat resistant hypertension and is in phase IIb trials for heart failure. The company is a spin-off from the INSERM, CNRS, and Paris Descartes University and has been listed on Euronext Growth since 2015.

Management

Jean-Philippe Milon, CEO
Benoit Gueugnon, CFO
B. Besse, CMO

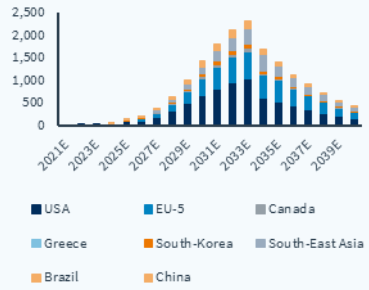
Key shareholders

Management	5.00%
Tethys	3.70%
Otium Capital	3.30%
Other institutional investors	20.80%

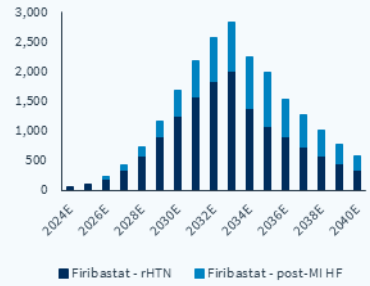
Key data charts

Price performance

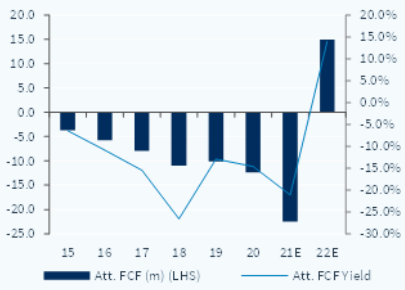
Sales split by region (EURm)



Sales split by division (EURm)

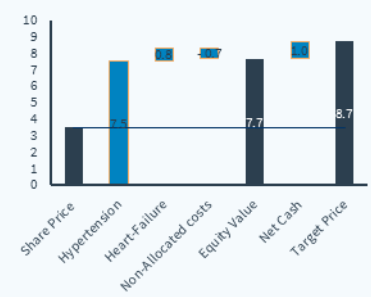


FCF



QG's revenues forecast (EURm)

Sum of the parts (EUR/share)



SWOT analysis

Strengths

- Good benefit/safety profile for firibastat in HTN
- Impressive results in hard-to-treat HTN populations
- Late-stage development product (phase III to start in Q4)
- Experienced management, light organisation (9 employees).

Weaknesses

- Single late-stage product company
- Limited clinical data available in HF
- High share of retail investors

Opportunities

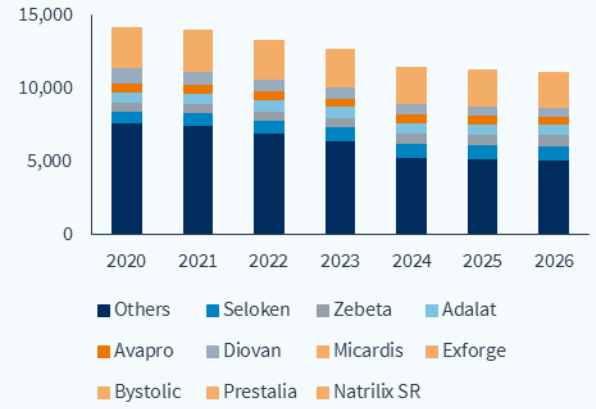
- High unmet medical need in resistant hypertension
- Heart failure represents a significant, growing market (>10% per year)
- Possibility to combine firibastat with other treatments
- Main regions (US, EU) still available for partnerships

Threats

- HTN is not targeted by most Big Pharma, still many regional bidders.
- HF: firibastat vs. reference drug (not placebo) make the study risky
- Huge number of cheap generic combinations could prevent quick uptake

Investment case in six charts

Chart 1: Global anti-hypertensive market (USDm)



Source: Evaluate

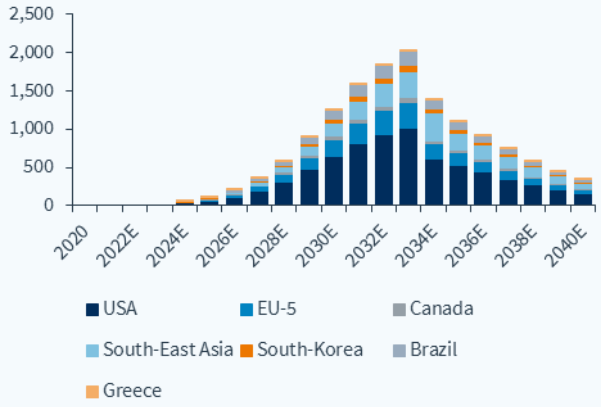
Chart 2: Effectiveness in high-risk population

	Black N = 96	Non-Black N = 158
Age, mean (SD), y	57.2 (8.5)	59.0 (10.6)
BMI, mean (SD), kg/m2	34.3 (5.1)	32.2 (5.1)
Systolic AOBP, mean (SD), mmHg	153.8 (7.1)	154.0 (7.3)
Change in systolic AOBP (mmHg)	-10.5 (14.7)	-9.1 (14.2)
	p<0.0001	p<0.0001

	Obese N = 166	Non-Obese N = 88
Systolic AOBP, mean (SD), mmHg	153.8 (7.2)	154.3 (7.3)
Change in systolic AOBP (mmHg)	-10.4 (14.6)	-8.3 (13.9)
	p<0.0001	p<0.0001

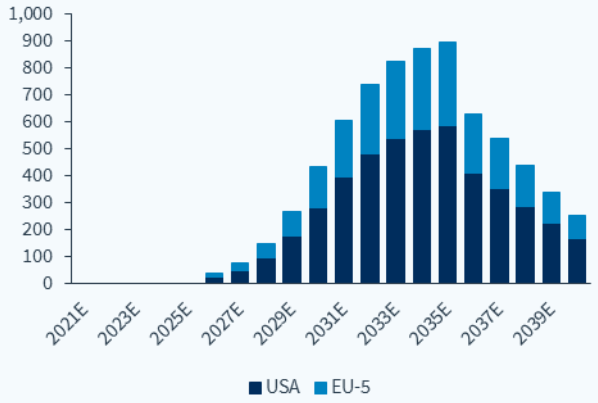
Source: Quantum Genomics

Chart 3: Firibastat in HTN sales forecast (EURm)



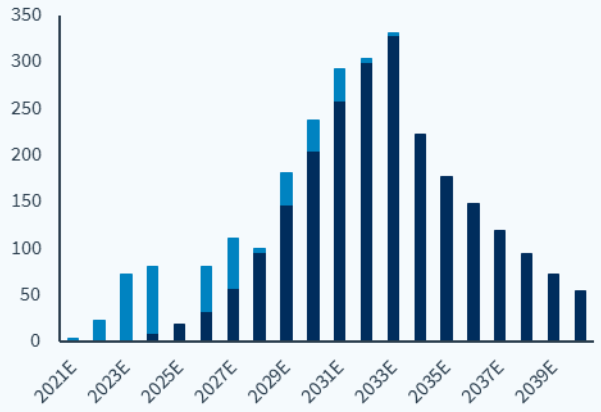
Source: Kepler Cheuvreux

Chart 4: Firibastat in HF sales forecast (EURm)



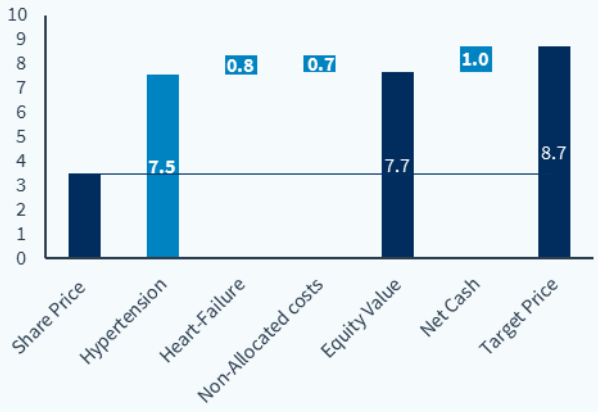
Source: Kepler Cheuvreux

Chart 5: QG revenues forecast (EURm)



Source: Kepler Cheuvreux

Chart 6: Sum of the parts (EUR/share)



Source: Kepler Cheuvreux

Contents

Could Quantum Genomics be successful with firibastat?

2020 was marked by the refinancing of the company, positive interim clinical results for firibastat in renal failure patients, and the signing of multiple partnerships. The global pandemic had little impact on QG's operations (mainly on patient recruitment).

Since 2019, Quantum Genomics has concluded several deals to develop and commercialise firibastat. Six partnerships have been signed, though only five are still in effect as QG recently announced the termination of its partnership with Qilu Pharmaceuticals in China (April 2021). According to the company, the partnership was cancelled due to differences of opinion regarding the R&D/commercialisation plan.

We question whether QG can ensure the commercial success of firibastat, through the signing of new partnerships in the two indications concerned, in the event of positive clinical results.

Positive 2020

Positive outcomes for patients with kidney failure

In September 2019, Quantum launched a clinical trial involving 14 patients with end-stage renal failure (the final stage of chronic kidney disease) and 14 healthy volunteers with normal renal function. The aim of the study was to demonstrate that firibastat could be used on patients with hypertension (HTN) or heart failure (HF) associated to kidney failure.

The interim results of the study released in May 2020 showed a longer persistence of firibastat (longer half-life) and its main metabolites due to the failure of the kidneys to eliminate them. Nevertheless, the maximum concentration of firibastat observed is not significantly higher than in healthy volunteers and the product appears to be well tolerated by patients. The data suggests that a potential dose adjustment may allow firibastat to be used in these patients. The final analysis will help confirm these results. We believe that the results reinforce the positive safety data provided by the phase IIb NEW-HOPE study in HTN.

Renal failure is an important comorbidity among patients with hypertension or heart failure. There is a close relationship between the heart and kidney, with increasing evidence that dysfunction of one organ negatively affects the other. According to The European Society of Cardiology (2015), heart failure and chronic kidney disease (CKD) coexist in 26% to 63% of heart failure patients (16-40% according to QG). Moreover, approximately 30% of patients with hypertension will have CKD (15-20% according to QG).

Financing rounds

In Q1 2020, QG entered a refinancing agreement with the Negma Group for EUR8m. The refinancing can be repeated two more times with the agreement of Negma Group, bringing the potential financing to EUR24m. In early November 2020, the company announced the end of the contract, which was considered positive by the market (and will certainly result in less dilution).

In December 2020 the company successfully completed a EUR20m private placement, where Otium Capital took a c. 3.4% stake in QG at a price of EUR4.5 per share. Otium Capital is French entrepreneur Pierre-Edouard Stérin's (the founder of SmartBox Group) family office.

Several partnerships concluded since 2019

The company already licensed out firibastat in HTN to six companies in various regions, including one that has since been terminated. It started with Biolab Sinus in 2019, which licensed firibastat in Latin America for USD21.2m in milestones payment and double-digit royalties on future sales.

Table 1: Licensing agreement signed for firibastat in HTN

Product	Indication	Date	Company	Region	Upfront*	Milestones	Royalties	Status
Firibastat	Resistant/ hard-to-treat hypertension	28/10/2020	Xediton Pharmaceuticals	Canada	-	USD11.4m	Double-digit	Ongoing
		22/09/2020	Orient EuroPharma	South-East Asia	EUR0.8m	USD19m	Double-digit	Ongoing
		16/10/2020	Qilu Pharmaceuticals	China	-	USD50m	Double-digit	Cancelled
		03/12/2020	DongWha Pharm	South-Korea	-	USD18.5m	Double-digit	Ongoing
		14/12/2020	Faran	Greece	-	USD12.1m	Double-digit	Ongoing
		10/12/2019	Biolab Sanus Pharmaceuticals	LatAm	EUR0.9m	USD21.2m	Non-disclosed	Ongoing

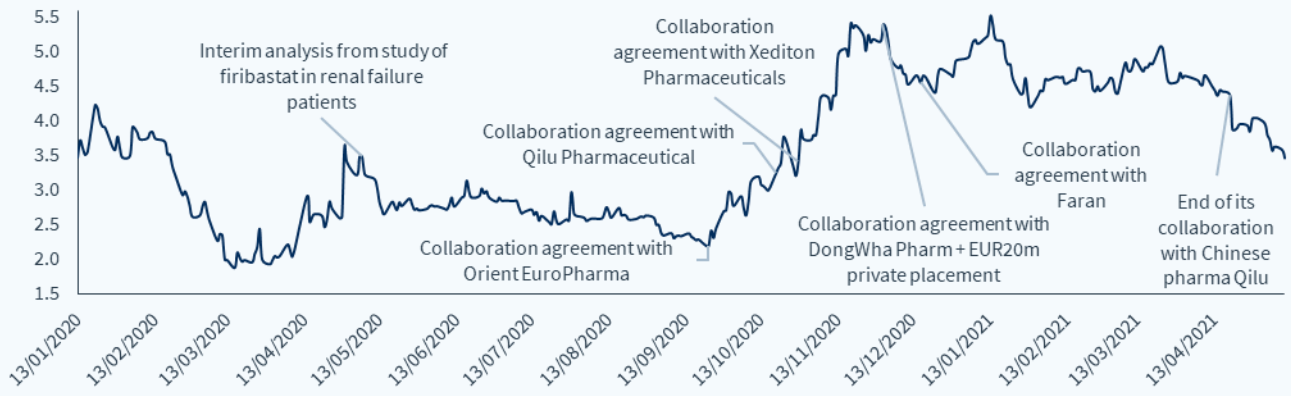
*paid in 2020;
Source: Kepler Cheuvreux

In addition, in December 2020 Quantum Genomics reached an agreement with Delpharm to manufacture the next clinical batches of firibastat tablets on an industrial scale and set up production lines for future commercial batches.

Stock struggles to perform while the newsflow has been positive overall since 2020

While QG's share price rose c. 43% over 2020 thanks to sustained positive newsflow, it is down by 29.5% YTD. We believe this is partly explained by the end of the agreement with Qilu Pharmaceuticals in China.

Chart 7: Share price performance from 2020, and selected newsflow



Source: Thomson Reuters; Quantum Genomics

QG has not yet found a partner for the US or for European countries (except in Greece), which we think is also partly to blame for the fall in the share price. We also note that there was very little clinical news on firibastat.

We expect two major clinical milestones this year, and subsequently potential development and commercialisation partnerships both in rHTN and post-MI HF. A EUR3.99 share price seems to offer a great discount given the pipeline's potential. We wonder whether Quantum Genomics can succeed with firibastat, both clinically and commercially. Therefore, in this report we review the market aspects that are favourable for the development and licensing of an innovative product in rHTN and post-MI HF, as well as the scientific basis for the late-stage development of firibastat by QG.

Supportive market for new cardiovascular drugs

Quantum Genomics is developing firibastat for the cardiovascular market, specifically in HTN and HF. Both have some gaps to fill due to unmet medical needs in certain patients.

The HTN market represented 1.1bn patients and was worth USD14bn in 2020 according to Evaluate. The prevalence of HTN is increasing, but the value of the market is decreasing due to generic pressure. However, aside from the advent of a fixed combination dose regimen, there was little innovation. Thus, there is a large population of patients whose blood pressure (BP) is still uncontrolled due to a lack of innovative and differentiated treatments for late stage diseases. It is a market with little competition, which represents a great opportunity for a treatment such as firibastat, which uses a different mode of action.

The HF market is more dynamic but smaller, with a market value of slightly more than USD3bn according to Evaluate. Drugs development in HF seems to get more interest from the pharma industry (e.g. Novartis, Bayer). Until now, QG had been positioning firibastat for a specific indication, i.e. the prevention of post-MI HF, for which Novartis failed to demonstrate any major improvement with its blockbuster drug, Entresto.

We found only a few global deals in the HTN and HF segment Nonetheless, we think there is still potential in the cardiovascular market, mostly in the HF segment.

Hypertensive patients in need of new solutions

HTN affects a large number of patients

The global prevalence of HTN was estimated to be c. 1.1bn patients in 2015 (Zhou et al. 2017). The prevalence of HTN in adults is particularly high: around 30-45%, and is consistent around the world, irrespective of income status (Chow et al. 2013). According to the Centers for Disease Control and Prevention (CDC), nearly half of adults in the US (108m, or 45%) have hypertension or are taking medication for hypertension. HTN becomes more common with age, with a prevalence of more than 60% in people over 60.

However, most of them are either unaware of the diseases or not controlling it

Managing high blood pressure is a lifelong commitment. Heart-healthy lifestyle choices are the cornerstone of treatment for all grades of hypertension (e.g. diet, physical activity, etc.). But according to a meta-analysis conducted by NCD Risk Factor Collaboration, an average of 28% of patients are actually unaware they have the disease. Eventually, an estimated 62% of patients who are aware of their condition will receive treatment. Hypertension medication can reduce blood pressure and the risk of associated diseases.

However, it is estimated that more than 60% of patients who receive treatment are considered to have uncontrolled hypertension. There could be a number of different reasons for this (e.g. treatment compliance, loss of efficacy overtime, lack of differentiated treatment solutions, etc.), but there is clear medical need for additional drugs with new modes of actions, such as firibastat.

Table 2: Prevalence of hypertension and rates of awareness, treatment, and control in people aged 40-79 years

	Women				Men			
	Prevalence	Awareness	Treatment	Control	Prevalence	Awareness	Treatment	Control
Australia (2012)	33%	75%	65%	38%	39%	67%	55%	28%
Canada (2016-17)	36%	72%	66%	50%	34%	84%	81%	69%
Finland (2017)	52%	77%	59%	29%	59%	74%	55%	26%
Germany (2008-11)	**43%**	**87%**	**80%**	**58%**	**46%**	**82%**	**70%**	**48%**
Ireland (2009-11)	43%	56%	50%	26%	56%	46%	39%	17%
Italy (2008-12)	**45%**	**77%**	**68%**	**31%**	**56%**	**69%**	**56%**	**23%**
Japan (2015)	**40%**	**66%**	**55%**	**29%**	**56%**	**65%**	**52%**	**24%**
New Zealand (2015-16)	41%	75%	62%	35%	45%	69%	55%	28%
South-Korea (2016)	34%	76%	74%	53%	44%	68%	65%	45%
Spain (2015)	**36%**	**69%**	**56%**	**29%**	**53%**	**64%**	**51%**	**25%**
UK (2016)	**36%**	**70%**	**59%**	**37%**	**40%**	**67%**	**55%**	**37%**
USA (2015-16)	**44%**	**86%**	**80%**	**54%**	**45%**	**79%**	**70%**	**49%**

Source: *Long-term and recent trends in hypertension awareness treatment, and control in 12 high-income countries: an analysis of 123 nationally representative surveys*, NCD Risk Factor Collaboration, 2019

HTN market in decline due to pressure from generics

The high number of patients with hypertension has resulted in a market that is large by volume, but not by value: it was only worth USD14bn in 2020 according to Evaluate. Indeed, many products on the market have been genericised, resulting in a significant decline since 2010.

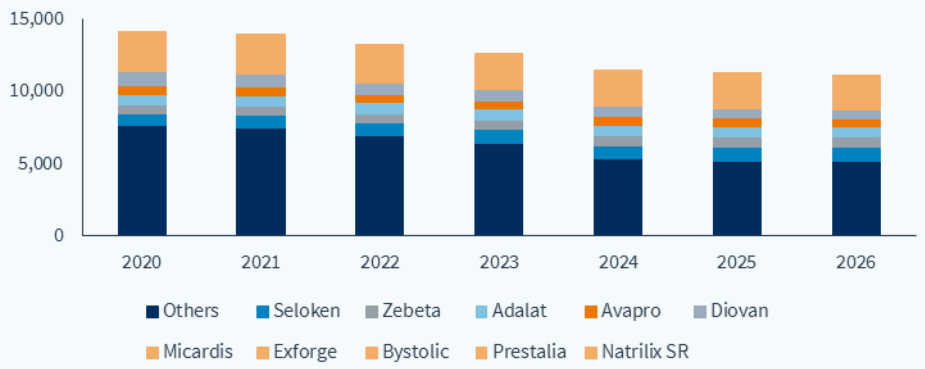
Table 3: Bestselling drugs in HTN

Manufacturer	Brand	Molecule(s)	Class	Genericised?	2020 sales (USDm)
Pfizer	Norvasc	Amlodipine besylate	CCB (long acting)	Yes	1,074
AstraZeneca	Lopressor/Seloken	Metoprolol	Beta-blocker	Yes	729
Merck KGaA	Zebeta	Bisoprolol	Beta-blocker	Yes	601
Sanofi	Avapro	Irbesartan	ARB	Yes	723
Bayer	Adalat	Nifedipine	CCB (long acting)	Yes	707
Novartis	Diovan	Valsartan	ARB	Yes	917
Boehringer Ingelheim	Micardis	Telmisartan	ARB	Yes	756
Novartis	Exforge	Amlodipine / Valsartan	CCB + ARB	Yes	868
Menarini	Bystolic	Nebivolol	Beta-blocker	Yes	359
Servier	Aceon	Perindopril	ACEi	Yes	329

ARB: Angiotensin Receptor Blocker, ACEi: Antiotensin-coverting enzyme inhibitor, CCB: Calcium channel blocker.
Source: Evaluate

Novartis's Diovan (valsartan, an angiotensin receptor blocker (ARB)) contributed the most to this decrease, as its sales fell from USD6bn in 2010 to USD1bn in 2018 due to its loss of exclusivity in 2012.

Chart 8: Global hypertension market (USDm)



Source: Evaluate Pharma

This decline of the market could be somewhat offset in the future by the increased use of fixed dose combination, which costs more than common generics. In addition, the potential launch of therapies targeting resistant HTN (such as firibastat) could bolster the market's growth prospects.

However, the size of the hypertension market could be underestimated, as several research providers estimate the global hypertension market to be worth more than USD20bn in 2018.For instance, Allied Market Research estimated the global hypertension drug market accounted for USD22.5bn in 2018, and is expected to reach USD28.7 by 2026, with a CAGR of 3.1% from 2019 to 2026.

Quantum Genomics is evolving in a big market where the medical need is still significant, as there is a high number of patients with uncontrolled HTN despite numerous drugs indicated for HTN, and where there is only limited innovation. Thus, we believe that QG could make room for firibastat in the hard-to-treat/resistant HTN segment.

Little innovative competition for QG

Despite a large market and significant unmet medical needs, only a few product candidates are in late stage development. The main competition for QG will be aprocitentan, which is being developed by Idorsia and Johnson & Johnson (J&J, via Janssen Biotech).

Table 4: Selected list of phase II and III studies ongoing in hypertension

Acronym	Conditions	Products	Sponsor/Collaborators	Phases	Enrolment
REFRESH	**Hypertension**	**Firibastat**	**Quantum Genomics**	**phase III**	**750**
PRECISION	Hypertension	Aprocitentan	Idorsia Pharmaceuticals/Janssen Biotech	phase III	600
	Hypertension	CIN-107	CinCor Pharma	phase II	448
BLOCKCKD	Hypertension	KBP-5074	KBP Biosciences	phase II	165
FRESH	**Hypertension**	**Firibastat**	**Quantum Genomics**	**phase III**	**502**
TARGET BP I	Hypertension	Drug: Dehydrated alcohol | Device: Peregrine System Kit	Ablative Solutions	phase III	300
	Hypertension	IONIS-AGT-LRx	Ionis Pharmaceuticals	phase III	150

Source: Clinicaltrials.gov, Kepler Cheuvreux

Among candidates in phase II trials, Vifor's Veltassa (patiromer) is not being developed to treat rHTN per se, but it would enable patients with both rHTN and chronic kidney disease (CKD), which are already treated with spironolactone, to stay on spironolactone by controlling blood potassium levels.

We also see renal denervation procedures rising among drugs treatments for rHTN. Renal denervation is a technique in which a catheter-mounted probe is inserted through the vasculature and used to burn the nerves in the renal arteries. This process causes a reduction in sympathetic nerve activity, which decreases blood pressure. The process is controversial, as blinded studies with a "sham" procedure do not seem to confirm effectiveness. It is an interventional procedure that not all patients are willing to undergo, and will therefore remain uncommon. However, according to QG, it is possible to prescribe firibastat after denervation in the event of failure or insufficient efficacy.

HF is an attractive second indication

Definition of heart failure

HF occurs when the heart is not able to pump enough blood to meet the organs' needs. Several conditions can lead to HF, such as coronary artery disease, which reduces the heart muscle's supply of blood (and therefore oxygen) weakening the heart, myocardial infarction (MI, heart attack), which leads to damage in the heart muscle, or HTN, which causes the heart to work harder (Mayo Clinic).

High mortality among HF patients

Global HF prevalence is much lower than HTN, with 1-2% of the adult population suffering from HF according to the ESC (1.03% in France, 0.86% in the UK, and 6.5m in the US, or 2.6%, according to HAS (French health authority, *Haute Autorité de Santé*), the UK National Institute for Health Research, and the American Heart Association (AHA)/Benjamin et al. 2017, respectively. The likelihood of HF increases with age and affects more than 10% of people over 70.

It represents a high-unmet medical need, as half of HF patients will die within five years of diagnosis. It remains one of the leading causes of hospitalisation. Heart failure is one of the leading causes of cardiovascular mortality and most often follows a myocardial infarction or high blood pressure.

Potential for the market due to intense competition on the horizon in HF

Market research shows that the HF drug market is relatively small, worth only USD3.0bn in 2020 according to Evaluate and USD3.7bn in 2018 according to GlobalData. However, the global HF market is expected to grow quickly, at a CAGR of over 15% in 2018-28.

Vericiguat, which was developed by Merck and Bayer and approved in 2021, should drive some of the market's growth. Another of the main drivers will be Novartis' Entresto (sacubitril + valsartan, i.e. a neprilysin inhibitor/ARB combination), sales of Entresto are expected to reach USD5.5bn by 2026 (mostly in HF), according to Evaluate Pharma consensus (vs. USD2.5bn in 2020).

Note, Entresto is indicated for the treatment of heart failure with a reduced ejection fraction. Quantum Genomics is targeting more specific indication, i.e. prevention of post-MI HF, where Novartis did not succeed. In May 2021, Novartis failed to show superiority compared to ACE inhibitor (angiotensin-converting enzyme) in reducing heart failure events after MI.

Of note, however, is the trend towards improvement in the secondary endpoints of the trial, including: 1) hospitalisations for HF or outpatient treatment for HF; 2) cardiovascular deaths, MI, and stroke; 3) cardiovascular deaths and total hospitalisations for HF, MI, and stroke; and 4) deaths from any causes.

The failure of Novartis in this specific segment is positive for QG, as it leaves more room in the segment for the company to position firibastat.

Limited number of deals in HTN/HF recently

Overall, we found only limited interest (in terms of partnerships) in the field of cardiology, except for the development of programmes in specific indications. A recent example of this is the acquisition of MyoKardia for USD13.1bn in October 2020 by Bristol Myers Squibb.

However, the most recent deal that involved a drug candidate similar to firibastat involves Idorsia and J&J, regarding aprocitentan, which was undergoing a phase II trial at the time of the deal. J&J began collaborating with Idorsia in December 2017 (post-phase II results), making a one-time milestone payment of USD230m. The late-stage development costs (including the phase III programme for rHTN) are split 50/50 by the companies. Idorsia will also be entitled to receive tiered royalties on annual net sales (20% up to USD500m, 30% from USD500m up to USD2bn, and 35% above USD2bn).

Another positive sign for QG is the acquisition of Corvidia Therapeutics by Novo Nordisk for USD725m (up to USD2.1bn if certain milestones are reach). Novo Nordisk, which specialises in the development and commercialisation of drugs for metabolic diseases such as diabetes, is diversifying into the cardiovascular field.

Table 5: Deals in HF/HTN indications

Product	Licenssee/ acquirer	Deal partner/ product source	Status on deal date	Indication	Deal date	Deal type	Territory	Upfront (USDm)	Deal size (USDm)	Royalties
Ziltivekimab	Novo Nordisk	Corvidia Therapeutics	Phase II	Cardiovascular	Jun-20	Acquisition	WW	725	2,100	
Aprocitentan	J&J	Idorsia	Phase II	HTN	May-17	In-licensed	WW	230	230	20-35%
CXL-1427	BMS	Cardioxyl	Phase II	HF	Nov-15	Acquisition	WW	300	2,075	
CAP-1002	J&J	Capricor Therapeutics	Phase II	HF	Jan-14	In-licensed	N/A	13	338	Yes
XEN-D0103	Servier	Xention	Phase II	Atrial Fibrillation	Oct-13	In-licensed	WW excl US and Japan	120		
Reldesemtiv	Astellas Pharma	Cytokinetics	Phase I	HF	Jun-13	In-licensed	WW ex US, EU, CA. Co-promotion in US, EU, CA	50	675	N/A
Neucardin	SciClone Pharma	Znsun Sci & Tech	Filed	HF	May-13	In-licensed	China		29	N/A
TRV027	Forest Lab. (Allergan)	Trevena	Phase II	HF	May-13	In-licensed	WW		460	N/A
Ibsrela	AstraZeneca	Ardelyx	Phase II	HF	Oct-12	In-licensed	N/A	35	272	N/A
Tekturna	Novartis	Speedel	Market	HTN	Jul-08	Acquisition	WW		882	

Source: Evaluate, companies, Kepler Cheuvreux

We believe that there is more interest in specific indications such as the prevention of HF post-MI (second indications targeted by QG). Therefore, if the phase IIb results of QUORUL are positive, we expect the company to partner with a global pharma company to pursue firibastat's development.

While QG is targeting hard-to-treat/resistant patients, it is still a market with a large population. Given the large number of players serving the worldwide market, the company strikes regional deals with partners already present in the cardiology market in their own regions, and is due to pursue opportunities in more important regions like the US and EU-5.

Ongoing clinical studies to be decisive

We have reviewed the results of QG's phase IIb trial (NEW-HOPE) evaluating firibastat in HTN patients. Overall, firibastat showed the first signs of efficacy mainly in high-risk (e.g. obese) HTN patients, and demonstrated a good safety profile. We also provide a description of phase II results from Idorsia's aprocitentan trial (one competitor in rHTN).

In our view, firibastat represents a real opportunity for hard-to-treat/resistant HTN patients thanks to its innovative mechanism of action. It is differentiating, and its profile makes it suitable for combination therapy with existing drugs. We take a positive view of the ongoing clinical trials in hard-to-treat and resistant HTN patients.

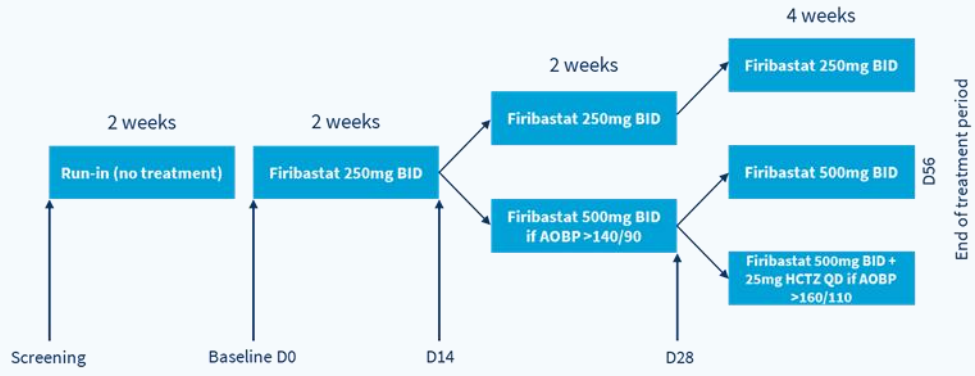
We also review the rationale for developing firibastat to prevent HF in patients who have experienced MI. QG based firibastat's development in HF on preclinical studies which showed potential efficacy in the post-MI population, as well as phase IIa clinical studies which have shown its good safety profile. Preclinical studies in rats and mice showed the efficacy of firibastat on different clinical and biological markers such as left ventricular (LV) diastolic pressure, LV ejection fraction, and mRNA biomarker levels. However, to date no clinical results have been released. The results of QUORUM (phase IIb) to be published in August are very important, and might be a game-changer for the company.

Early phase II clinical trials were positive in high-risk populations

Firibastat has already been tested in several clinical studies, the most important being a phase IIb study called NEW HOPE (for Novel Evaluation With QGC001 in Hypertensive Overweight Patients of multiple Ethnic origins).

The patients enrolled in NEW HOPE were at high risk: 100% were overweight, of which 65% were obese, 28% had Type 2 diabetes, and 53% were minorities known to be at high risk (38% African Americans and Hispanics, but no Asians). NEW HOPE was conducted in the US and involved 38 centres. Two doses were tested: 250mg twice a day and 500mg twice a day.

Chart 9: NEW HOPE (phase IIb) study design



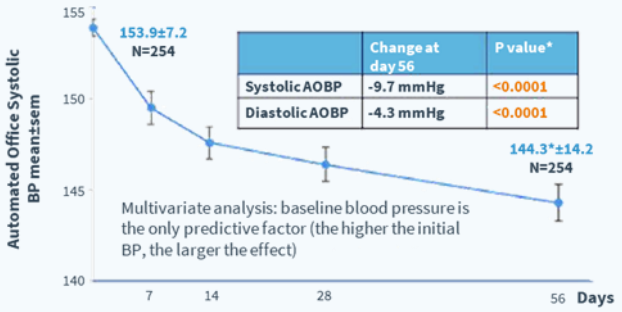
BID: twice daily (bis in die). QD: once daily (quaque die). HTCZ: hydrochlorothiazide (diuretic), AOBP: Automated office blood pressure; Source: Quantum Genomics.

The primary objective was to reduce BP (endpoint: change from baseline BP, measured via AOBP). The secondary endpoints were ABPM, safety, and pharmacodynamics. After eight weeks of treatment, systolic BP was reduced by 9.7mm Hg and diastolic BP by 4.3mmHg versus the baseline. According to the company, a BP decrease of at least 5mm Hg is considered clinically relevant to determine an anti-hypertensive effect.

More importantly, firibastat worked even better in high-risk sub-populations (for instance, -10.5mm Hg in black people and -10.4mm Hg in obese people). These reductions in BP were statically significant and clinically relevant.

According to UK National Institute for Health Research, a 10mm Hg reduction in systolic blood pressure reduced the risk of major cardiovascular disease events by 20%, coronary heart disease by 17%, strokes by 27%, heart failure by 28%, and death from all causes by 13%.

Chart 10: Change in BP at eight weeks



Source: Quantum Genomics

Chart 11: Effectiveness in high-risk subpopulations

	Black N = 96	Non-Black N = 158
Age, mean (SD), y	57.2 (8.5)	59.0 (10.6)
BMI, mean (SD), kg/m2	34.3 (5.1)	32.2 (5.1)
Systolic AOBP, mean (SD), mmHg	153.8 (7.1)	154.0 (7.3)
Change in systolic AOBP (mmHg)	-10.5 (14.7) p<0.0001	-9.1 (14.2) p<0.0001

	Obese N = 166	Non-Obese N = 88
Systolic AOBP, mean (SD), mmHg	153.8 (7.2)	154.3 (7.3)
Change in systolic AOBP (mmHg)	-10.4 (14.6) p<0.0001	-8.3 (13.9) p<0.0001

Source: Quantum Genomics

Overall, safety and tolerability were sufficient as 42% of patients experienced a treatment-emergent adverse event, 7.5% of patients experienced adverse events leading to discontinuation, and only 2% experienced serious adverse events (SAEs).

Aprocitentan (J&J/Idorsia) is the closest competitor in rHTN

Aprocitentan in a nutshell

Aprocitentan is an orally active dual endothelin receptor antagonist that is being investigated for patients whose hypertension is uncontrolled despite the use of at least three anti-hypertensive drugs (called resistant hypertension in the medical community).

Phase II design

Aprocitentan was tested in a prospective, multi-centre, double-blind, randomised, monotherapy, placebo, and active-reference (lisinopril, an angiotensin converting enzyme inhibitor) controlled phase II study that included 490 patients with mild to moderate essential HTN.

The study evaluated the efficacy, safety, and tolerability of a once-a-day oral regimen of four dose levels of aprocitentan (5mg, 10mg, 25mg, and 50mg). A group of 327 patients received aprocitentan, 82 patients were in the placebo group, and 81 in the lisinopril group.

Phase II results

After eight weeks of treatment, the mean reduction from the baseline in diastolic BP (AOBP) was between 6.3mm Hg and 12.0mm Hg in the aprocitentan groups versus decreases of 4.9mm Hg and 8.4mm Hg in the placebo and lisinopril groups, respectively (statistically significant). Systolic BP reductions ranged from 10.3mm Hg to 18.5mm Hg in a dose-dependent manner in the aprocitentan groups and 7.7mm Hg and 12.8mm Hg in the placebo and lisinopril groups, respectively (statistically significant). Results were confirmed by 24-hour ABPM.

Aprocitentan was well tolerated. Discontinuation due to an adverse event ranged between 1.2% and 3.7% for the aprocitentan groups versus 6.1% in the placebo group and 3.7% in the lisinopril group. The overall frequency of adverse events was similar to those observed in the placebo group.

Table 6: Summary of phase II results with aprocitentan (Idorsia)

	Placebo	Aprocitentan				Lisinopril
		5 mg	10 mg	25 mg	50 mg	
# patients in per protocol	n= 66	n= 68	n= 71	n=67	n=68	n=69
Sitting systolic BP, mmHg						
- Baseline	149.2	149.4	149.8	151.2	148.6	149.8
- Change from baseline to week 8	-7.7	-10.3	-15	-18.5	-15.1	-12.8
- Placebo corrected	-	-2.45	-7.05	-9.9	-7.58	-4.84
- P value	-	*0.707*	*0.014*	*<0.001*	*0.008*	*0.093*
Sitting diastolic BP, mmHg						
- Baseline	97.5	97.8	97.7	97.8	98.2	96.8
- Change from baseline to week 8	-4.9	-6.3	-9.9	-12	-10	-8.4
- Placebo corrected	-	-1.31	-4.93	-6.99	-4.95	-3.81
- P value	-	*0.812*	*0.005*	*<0.001*	*0.006*	*0.03*

Source: Verweij et. al., Hypertension (2020)

Aprocitentan is now being developed by J&J and Idorsia. It is undergoing a phase III clinical trial (PRECISION) to demonstrate antihypertensive effect when added to standard care in patients with resistant hypertension, such as those enrolled in QG's FRESH study. Results from the PRECISION study are expected in the first half of 2022E.

Takeaway from phase IIb results

Idorsia's and QG's clinical studies are not comparable since several criteria (design, patients, etc.) are different. All patients enrolled by QG were considered at risk with comorbidities, which did not seem to be the case in Idorsia's studies.

We see some possible limitations to the interpretation of the NEW HOPE study.

- The phase IIb was not designed to compare firibastat to a placebo or an active control. This was a decision by the steering committee as the use of a placebo or active control group for this type of high-risk population could be considered unethical and there is no determined standard of care, according to QG.
- In addition, QG shared the results of the all-patient population of the study, but did not differentiate results between the different doses (250mg BID, 500mg BID, and 500mg BID + HCTZ).

We understand from our discussions with the company that a subgroup analysis of the three doses showed no difference between the groups. This means that there are some patients who are normalised at 250mg BID. When this is not the case, the 500mg BID dose is effective in the majority of cases, and in cases where it is not the combination with HCTZ increases effectiveness. The secondary analysis of the subgroup of patients who received only 500mg BID showed clinically relevant results.

Firibastat and aprocitentan show different safety profiles. Still, while aprocitentan was well tolerated, during the study some patients experienced decrease in haemoglobin and haematocrit with an increase in plasmatic volumes, which could lead to anaemia.

While Idorsia also obtained good results with its product, on the basis of the two studies, it is hard to determine whether aprocitentan or firibastat is the best. Nevertheless, we believe that even if one is better than the other, the medical need is so great that two new drugs would not be enough to meet it. We remain positive on firibastat. According to QG, the FDA requirement for demonstrating the efficacy of a hypertension drug is a difference of at least 5mm Hg in systolic BP with placebo. QG might be able to demonstrate it with its FRESH and REFRESH studies.

In its ongoing phase III studies, QG not only targets resistant[1] patients but also hard-to-treat patients. We see this as a broadened target population for firibastat.

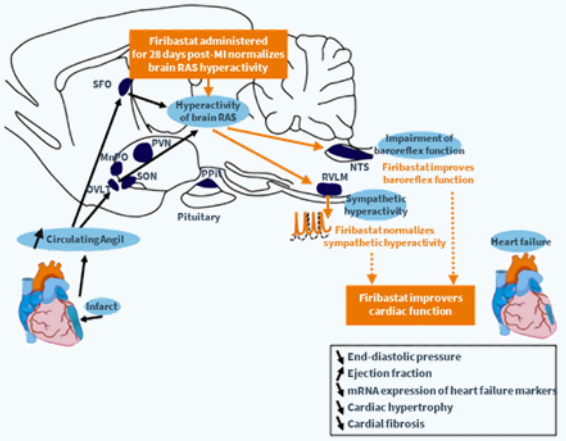
[1] Resistant hypertension is defined as persisting high systemic blood pressure (i.e., failure to lower blood pressure to a pre-defined threshold) despite concurrent administration of at least three antihypertensive therapies of different pharmacological classes

Overall, we think the phase IIb results from NEW HOPE are encouraging. Bear in mind that no drugs are approved for resistant hypertension. Thus, there is still some room (considering the high number of patients with uncontrolled hypertension) for several products with different efficacy and safety profiles in this indication.

Scientific basis for firibastat in HF indication

Firibastat's mode of action for preventing HF after MI

Chart 12: Representation of firibastat's mode of action for preventing cardiac dysfunction after MI



Source: Marc et al. Targeting brain aminopeptidase A: New strategy for the treatment of hypertension and heart failure. Canadian Journal of Cardiology; 36(2020)721E731

After MI, ischemia induces a loss of cardiomyocytes (cells that make up the heart muscle/cardiac muscle) causing fibrous scars to form, leading to circulating angiotensin II levels increase which penetrate structures in the brain, where they stimulate angiotensin type 1 receptors (AT1R).

This induces brain Renin-Angiotensin System (RAS) hyperactivity, leading to sympathetic hyperactivity and an impairment of baroreflex[2] function. Sustained hyperactivity of the sympathetic nervous system has serious adverse consequences that contribute to heart failure.

QG showed that chronic treatment with firibastat for 4- 6 weeks after MI in rats or mice normalises brain RAS hyperactivity, leading to a normalisation of sympathetic activity and improvements in baroreflex function. Firibastat blocks Aminopeptidase A, the enzyme responsible for generating brain angiotensin III (AngIII). AngIII eventually leads to sympathetic hyperactivity and an impairment of baroreflex function.[3]

Preclinical data support clinical development

Quantum Genomics conducted several preclinical studies in hypertension and heart failure to demonstrate the use of firibastat in those diseases.

The potential efficacy of firibastat was first demonstrated in rats (Huang et al. Cardiovascular Research (2013)). Rats that had undergone coronary artery litigation were infused for four weeks with either a vehicle (i.e. a placebo), the aminopeptidase A (APA) inhibitor, or losartan (an angiotensin II receptor antagonist).

A number of parameters were tested to detect cardiovascular function impairment, and potential improvement after animals being treated either with firibastat or losartan. The preclinical studies demonstrated that firibastat was able to attenuate sympathetic hyperactivity post-MI and improve cardiac function. For example, LVEF improved by 10% (76% vs. 66% when rats received a vehicle, i.e. no drug) (Huang et al. 2013).

[2] Rapid negative feedback loop in which an elevated blood pressure reflexively causes the heart rate to decrease and also causes blood pressure to decrease.

[3] Y. Marc, S. E. Boitard, F. Balavoine, et. al. Targeting brain aminopeptidase A: New strategy for the treatment of hypertension and heart failure. Canadian Journal of Cardiology; 36(2020)721E731

Table 7: Summary efficacy results from preclinical study

		MI		
	Sham	**Vehicle**	**#**	**Firibastat**
MI size (%)	-	25 ± 1	24 ± 2	24 ± 1
Renal sympathetic nerve activity (%)	17 ± 2	34 ± 2	23 ± 2	20 ± 2
Left ventricular function:				
EF (%)	92 ± 2	66 ± 3	63 ± 3	76 ± 2
LVPSP (mmHg)	126 ± 2	120 ± 1	118 ± 3	124 ± 2
LVEDP (mmHg)	3 ± 1	16 ± 2	9 ± 1	9 ± 1
dP/dt_{max} (mmHg/s)	8,076 ± 145	6,116 ± 141	6,740 ± 63	7,259 ± 293

Source: Huang et al. Cardiovascular Research (2013); Sham: rats that did not have MI artificially induced

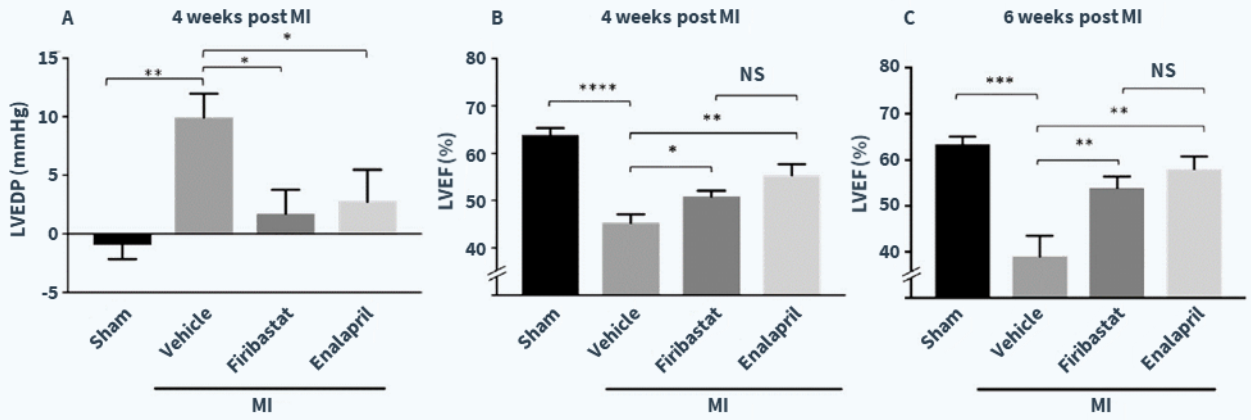
The results indicated that brain aminopeptidase A (APA, not shown in the table above) and Ang III appear to play a pivotal role in sympathetic hyperactivity and LV dysfunction in rats post-MI.

Another preclinical study tested firibastat's efficacy in mice. Firibastat was compared to enalapril (angiotensin I converting enzyme inhibitor, approved in post-MI HF) as a positive control, and to a placebo (vehicle) in the mice model where MI was induced through surgery.

The study demonstrated that firibastat treatment normalised brain APA hyperactivity after four weeks of treatment, proving QG's initial hypothesis.

In addition, four and six weeks after MI, MI + firibastat mice had significantly lower LV diastolic pressure, systolic diameter and volume, and a higher LV ejection fraction than MI + vehicle (i.e. placebo) mice. Moreover, the mRNA levels of HF biomarkers (e.g. brain natriuretic peptide) were significantly lower following firibastat treatment.[4]

Chart 13: Effects of the chronic oral administration of firibastat or enalapril on left ventricular ejection fraction (LVEF) and end-diastolic pressure (LVEDP) in mice post-MI



Source: S.E. Boitard et al. ; Journal of Molecular and Cellular Cardiology ; 2018

The data suggest that chronic oral firibastat treatment after MI normalises brain APA hyperactivity, thereby normalising brain RAS and sympathetic hyperactivity, while preventing cardiac dysfunction and attenuating cardiac hypertrophy and fibrosis. Firibastat treatment was as effective as enalapril. APA inhibitors such as firibastat may therefore constitute a potential new class of therapeutic agents for the treatment of post-MI HF.

Overall, firibastat improves cardiac function demonstrated through several effects: 1) LV end-diastolic pressure reduction; 2) an improvement in the ejection fraction; 3) a decrease in mRNA

[4] S.E. Boitard et al., Brain renin-angiotensin system blockade with orally active aminopeptidase A inhibitor prevents cardiac dysfunction after myocardial infarction in mice, Journal of Molecular and Cellular Cardiology, 127 (2019) 215–222

levels for various heart failure markers; 4) a decrease in cardiac hypertrophy; and 5) a decrease in cardiac fibrosis.

The phase IIb QUORUM evaluating firibastat to prevent heart failure after myocardial infarction has been launched, mostly relying on the efficacy data from preclinical studies and the good safety profile shown in phase IIa.

QUORUM, the game-changing study

As phase IIa demonstrated the drug's safety, the company decided to pursue development in HF, through a phase IIb trial called QUORUM (QUantum Genomics QCG001 Or Ramipril after acUte Myocardial infarction to prevent left ventricular dysfunction). Professor Montalescot, a renowned KOL (key opinion leader) based in Paris, is the lead investigator for the QUORUM trial. This study involves 38 centres in the US and seven European countries. It is a randomised, double-blind, active-controlled trial with three parallel groups:

1. Firibastat 100 mg BID (twice daily).
2. Firibastat 500 mg BID.
3. Ramipril 5 mg BID. Ramipril, an ACEi, is one of the reference treatments for HF post-MI.

The study will enrol 294 subjects. Inclusion criteria imply that patients enter the study within 72 hours of an acute MI that was treated with percutaneous coronary intervention (PCI, or stenting).

The objective of QUORUM is to evaluate the efficacy and safety of firibastat. The primary endpoint will be the change from the baseline in LVEF after a three-month course of treatment. Other endpoints will include cardiac events and safety. QG is due to release the results of the study on 27 August. According to the company, a 5% difference in the change in ejection fraction (LVEF) between firibastat and ramipril would be clinically meaningful. This would demonstrate the effectiveness of firibastat compared to standard of care in these patients.

Deconstructing the forecasts

We take this opportunity to review our sales forecasts for both indications. Our methodology remains the same as before. However, we now include patient populations for which the company already licenses out firibastat in our estimates. We remain cautious, as we no longer include Chinese patients since the company cancelled the partnership that it signed for the country last year, although management still expects to launch a new partnership in this country leading to potential upside. In addition, we previously include all patients suffering from HF. From now on, we include patients with MI at risk of HF in our forecasts.

We fine-tune our estimates, and lower our sales expectations. We now forecast EUR2.8bn in peak sales by 2033E for both indications, including EUR2.0bn in HTN by 2033E, and EUR900m in post-MI HF by 2035E.

Methodology and scope

We have estimated the sales of firibastat based on the indications currently being evaluated in clinical trials. We have based our sales forecast on the projected number of patients with either resistant HTN or post-myocardial infarction HF.

For resistant HTN, we forecast sales in the US and the EU, as well all already licensed regions (e.g. South-East Asia, South Korea, Brazil, and Greece). As for the HF indication, we only anticipate sales in the US and top five European countries.

QG owns several patent families around firibastat (ex-QGC001), in conjunction with INSERM. These patents provide protection for firibastat up to 2031 (plus a possible five-year extension). In addition, we assume ten years of average marketing exclusivity once approval is obtained (US/EU). Our forecast runs to 2040. We factored in a sales ramp-up until the loss of marketing exclusivity in the various regions or the loss of patent protection. After that point, we assume a gradual decrease in sales due to potential arrival of generic drugs.

EUR2.0bn forecast for firibastat in HTN in six regions

We include patient populations for countries where QG has already licensed out firibastat in our forecasts. As the partnership with Qilu Pharmaceuticals has been terminated, we exclude Chinese patients from our sales forecasts for now. Of course, we include patient populations from the US and EU-5 regions where we believe there is the most value to captured.

In addition, we update the number of patients we expect to be targeted. Indeed, as the phase IIb study results showed greater efficacy than expected, we include patients with uncontrolled HTN (resistant or hard-to-treat) with two or more comorbidities to reflect “high-risk” patients, representing 42% of patients with HTN. You will find our market assumption details in the table below.

Table 8: Market assumptions for firibastat in post-resistant HTN indication

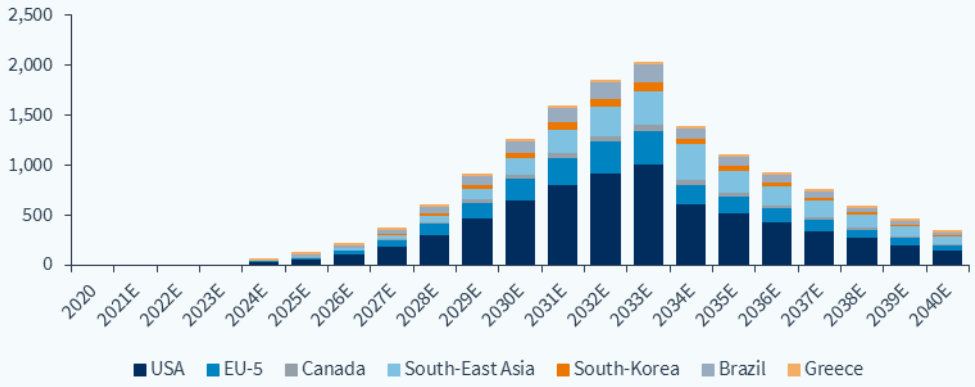
	EU-5	US	SEA	Canada	SK	Brazil	Greece
Eligible patients, m	6.5	12.7	1.2	3.1	1.6	3.9	0.2
Launch	2024	2024	2025	2024	2024	2024	2024
Loss of exclusivity	2034	2034	2035	2034	2034	2034	2034
List price (EUR)	590	840	472	590	590	472	590
Market penetration (%)	10%	10%	10%	10%	10%	10%	10%

Source: Kepler Cheuvreux

The potential of firibastat in HTN does not lie solely in its use in combination with ramipril (or any other standard of care). Further studies with different formulations or combinations could expand the scope of firibastat in hypertension. If the results are positive, it is even possible that the product could be developed for hypertension treatment in non-resistant patients.

We forecast peak sales of EUR2.0bn in 2033E for firibastat in the indication of hard-to-treat resistant hypertension with a potential launch in the US and EU-5 as soon as 2024E.

Chart 14: Sales forecast for firibastat in HTN (EURm)



Source: Kepler Cheuvreux

Additional EUR900m opportunity expected in HF

Change in target population expected

We previously estimated that QG would target the same patient population as Entresto (Novartis), that is, patients with HF associated to Left Ventricular Ejection Fraction (LVEF) <35% who have not stabilised despite treatment with ACEi plus MRA or sartan. In its phase IIb study, QG is specifically targeting patients diagnosed with first acute MI who had a primary percutaneous coronary intervention (PCI) to prevent HF apparition.

There are an estimated 805,000 heart attacks per year in the US. According to INSERM, there are c. 80,000 per year in France. Heart failure after a patient is discharged from a hospital is very common, occurring in approximately 13% of patients at 30 days and 20–30% at one year after discharge for MI. The incidence of HF after MI discharge is highest in the first month, before dropping and remaining stable at 1.3-2.2% per year afterwards.

In the absence of results, we currently assume that most patients who have undergone MI will be eligible for firibastat, including 805,000 in the US and 840,000 in the EU-5.

Peak sales of EUR900m

Kepler Cheuvreux analyst had estimated that Entresto (Novartis) could bring USD600m (EUR503m) in additional sales for the post-MI HF indication if approved. This could be viewed as quite conservative, however we have to consider the possibility that Entresto could be genericised by 2026E (i.e. a relatively short sales ramp-up).

Considering the absence of innovative treatments in this indication, we anticipate market penetration of at least 25%. Therefore, we forecast sales to peak at EUR900m by 2034.

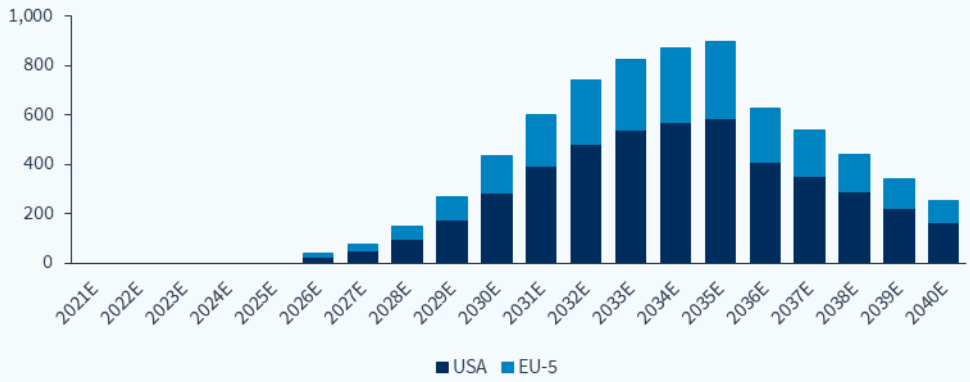
Table 9: Market assumptions for firibastat in post-MI HF prevention indication

	US	EU
Eligible patients, m	0.7	0.8
Launch	2026	2026
Loss of exclusivity	2036	2036
List price (EUR)	3,690	1,845
Market penetration (%)	25%	25%

Source: Kepler Cheuvreux

According to Bahit et al. (2018), incidence of HF post-MI could be up to 36%. In a best case scenario we model sales based on 36% market share which would lead to peak sales of EUR1.3bn.

Chart 15: Sales forecast for firibastat in post-MI HF (EURm)



Source: Kepler Cheuvreux

In the table below, we provide a sensitivity analysis of firibastat's peak sales in the HF indication according to different market shares and list prices.

Table 10:HF sales sensitivity table

		Market share				
	EURm	15%	20%	25%	30%	36%
List price	-20%	431	575	718	862	1,034
	-10%	485	647	808	970	1,164
	0%	539	719	898	1,078	1,294
	10%	593	791	989	1,186	1,424
	20%	647	863	1,079	1,294	1,553

Source: Kepler Cheuvreux

Investment conclusion: Buy, TP EUR8.7

We have reviewed the markets for HTN and HF, the potential positioning of firibastat, the NEW-HOPE phase IIb trial in HTN patients, and the scientific basis for HF, for which firibastat is being developed. In our view, QG's fundamentals may be strong enough to make it successful in the cardiology field. The company will release the results of QUORUM as soon as the end of August and the results of FRESH by the end of the year.

The two studies could confirm QG's potential in cardiology. QG aims to signed further licensing agreement for firibastat in HTN and HF. Different licensing strategies may be applied. While we decrease number of patients targeted by firibastat in both indication, we raise our hypothesis on potential deals which could be signed in the next couple of years (EUR320m in HTN and EUR180m in HF).

We therefore confirm our outlook for Quantum Genomics and reiterate our Buy rating. We have adjusted our estimates and valuation hypothesis by decreasing the estimated number of target patients and increasing the value of future licensing agreements. Consequently, we maintain our TP at EUR8.7 (EUR232m equity value).

QG is supported by the very positive safety and good efficacy results for firibastat in high-risk HTN patients from the NEW HOPE phase II trial. HTN is a global mass market with many generic drugs and little innovation. Overall, we view these factors as positive for firibastat, and see room for potential commercial success in hard-to-treat/resistant patients. Firibastat's development in HF is based on preclinical studies demonstrating its potential efficacy on key clinical criteria and biomarkers. New drugs have come into the HF market recently, and it is still dominated by Novartis. However, we see potential for firibastat in specific indications, such as post-MI HF, where others have failed.

Looking at the current value (EUR3.99 as of 16 July), we believe that QG is undervalued given firibastat's potential (EUR2.8bn in peak sales). Considering the company's expected newsflow this year, this might represent a good entry point.

Valuation method and scope

We use firibastat's risk-adjusted NPV in hypertension and hear failure in our valuation. In addition, we include a valuation of the non-allocated costs and revenues from headquarter operations. We value Quantum Genomics through a sum of the parts approach.

We use a 15% WACC for all indications, in line with our biotech universe. To calculate our TP, we use 26.7m shares.

Likelihood of success

To model the risk of failure in the clinical development of firibastat, we use the probability of success for each clinical phase. Overall, we estimate a likelihood of approval for firibastat in hypertension of 47% and 11% for heart failure.

Table 11: Probability of success by clinical phase

	Cardiovascular
Ph. I --> Ph. II	59%
Ph. II --> Ph. III	24%
Ph. III --> Reg.	56%
Reg. --> Launch	84%
Cumulative probability	**6.7%**

Source: Wong et al (2018), Thomas et al (2016), Hay et al (2014), and DiMasi et al (2010)

Achieving firibastat's potential will require help from partners

Quantum Genomics does not aim to launch and commercialise firibastat by itself. The company has already started business development (licensing out) with five partnerships signed in hypertension.

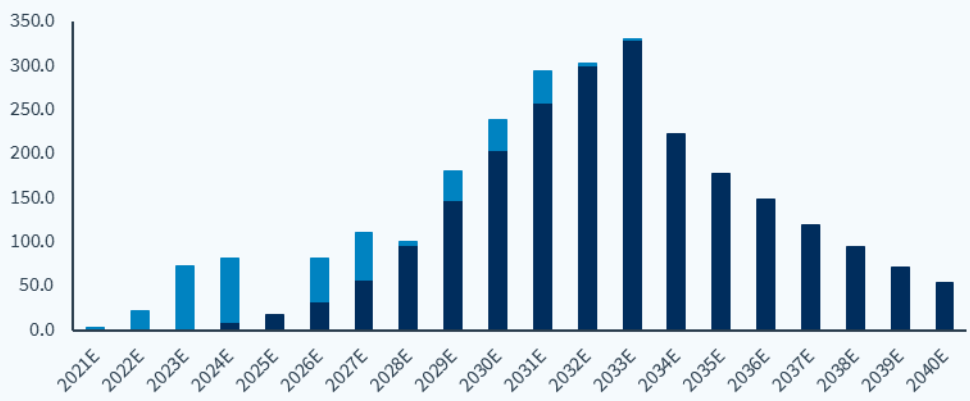
The development/commercial partners for firibastat in hypertension and heart failure would not be the same. In hypertension, the interest is driven by regional players in the cardiovascular field, while in heart failure the company would likely partner with a global pharma group. Recall that we include in our valuation QG's partnerships already signed (five partnerships already signed).

Previously, we had assumed a US/EU-5 deal, including firibastat in HTN and HF, for a total value of EUR220m. We raised our estimations, changing terms of partnership. We now consider two different deal for HTN and HF regarding US and EU-5 regions. However, the company have the possibility to signed either separate deals or one for HF and HTN indications.

As for firibastat in hypertension, we have modelled licensing deals for the US and EU-5 being reached before the release of the REFRESH results (2023E) and the filing of the marketing authorisation application. We now expect a deal US/EU-5 for a total amount of EUR320m, which include EUR22m upfront paid in 2022E, with 17% royalty rate on net sales.

As for firibastat in HF, we have modelled a licensing deal in the US and EU-5 being signed as of 2022 onward for a total amount of EUR180m including EUR18m upfront and 15% royalty rate.

Chart 16: QG revenues forecast (EURm)



Source: Kepler Cheuvreux

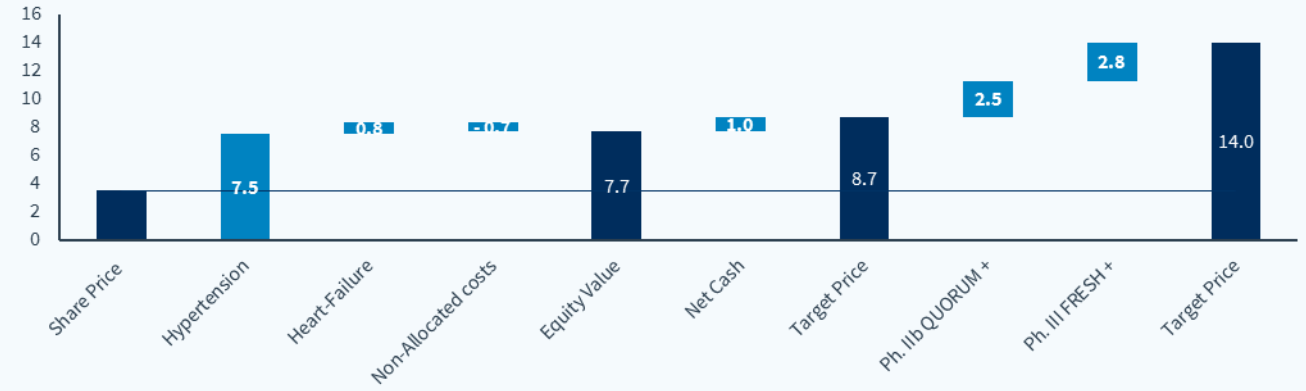
Buy, TP EUR8.7

Based on our review of QG's two clinical programmes, we maintain our target price of EUR8.7 as we see only a marginal change in the valuation. We value QG at EUR232m, compared to its current market value of EUR107m (118% upside). We believe that QG will release positive results in either hypertension or heart failure.

This would bring some upside to the stock price. We have calculated that positive and clear results from QUORUM would add EUR2.5 per share to our target price, and the first positive results in the phase III FRESH study would add c. EUR2.1 per share to our target price. Thus, positive outcomes from FRESH and QUORUM would lead to TP of EUR14. Further upside will come from a positive read-out from licensing out firibastat in both indications.

Quantum Genomics' pipeline relies only on firibastat. It is a mono-product company for now, even if the company is developing additional formulations of firibastat and improved compounds. We flag this as a risk. The HTN and HF indications are different. Therefore, we believe that the clinical failure of one would not affect the other. However, it would have a strong negative impact on the share price.

Chart 17: Sum of the parts (EUR/share)



Source: Kepler Cheuvreux

In the best-case scenario, in which the results of the clinical studies are positive (i.e. 100% likelihood of approval) and firibastat is approved for commercialisation, we value Quantum Genomics at EUR627m.

We provide in the tables below a sensitivity analysis for our target price according to different parameters such as the WACC, the likelihood of success of the clinical phases, list price, and market share.

Table 12: Sensitivity tables

LoS* Ph. III in HTN \ WACC	12%	13%	14%	15%	16%	17%
36%	6.9	6.3	5.8	5.4	5.0	
46%	8.6	7.9	7.3	6.7	6.2	
56%	10.3	9.5	8.7	8.1	7.5	
66%	12.1	11.1	10.2	9.4	8.7	
76%	13.8	12.7	11.6	10.7	9.9	

List price \ Market share	7%	8%	9%	10%	11%	12%
-20%	6.5	7.0	7.5	8.0	8.5	
-10%	7.0	7.6	8.1	8.7	9.3	
0%	7.5	8.1	8.7	9.4	10.0	
10%	8.0	8.7	9.4	10.1	10.8	
20%	8.5	9.2	10.0	10.7	11.5	

15%

LoS* Ph. II in HF \ WACC	12%	13%	14%	15%	16%	17%
4%	9.5	8.8	8.1	7.5	6.9	
14%	9.9	9.1	8.4	7.8	7.2	
24%	10.3	9.5	8.7	8.1	7.5	
34%	10.7	9.8	9.1	8.4	7.7	
44%	11.1	10.2	9.4	8.7	8.0	

List price \ Market share	5%	15%	25%	35%	45%
-20%	8.3	8.5	8.6	8.8	9.0
-10%	8.3	8.5	8.7	8.9	9.1
0%	8.3	8.5	8.7	9.0	9.2
10%	8.3	8.6	8.8	9.0	9.3
20%	8.3	8.6	8.8	9.1	9.4

*Likelihood of Success
Source: Kepler Cheuvreux

Quantum Genomics reported a cash position of EUR27.1m at the end of 2020. In addition, it has secured EUR3m in non-dilutive financing in the form of a state-guaranteed loan (PGE) of EUR1.5m and an innovation loan from BPI France of EUR1.5m. This should provide at least 12 months of financial visibility. However, thanks to existing and new partnerships, the company may be able to increase its visibility further.

Expected newsflow

Table 13: Expected newsflow for Quantum Genomics

	Product	Indication	News	Impact
Q3 2021	Firibastat	Heart failure	QUORUM phase IIb results	High
mid-2021	Firibastat	Hypertension	First patient in RE-FRESH study	Low
Q4 2021	Firibastat	Hypertension	Top line results from phase III FRESH study	High
Mid-2023	Firibastat	Hypertension	Top line results efficacy (RE-FRESH)	High
2021 onward	Firibastat	Hypertension	Signing of additional partnership (US/Europe/Chine	High
2021 onward	Firibastat	Heart failure	Signing of partnership for development finalisation and commercialisation	High
2021 onward	Firibastat	Heart failure	Phase III launch	High

Source: Kepler Cheuvreux; Quantum Genomics

Valuation table

Market data as of:21 July 2021

FY to 31/12 (EUR)	12/14	12/15	12/16	12/17	12/18	12/19	12/20	12/21E	12/22E
Per share data (EUR)									
EPS adjusted	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
% Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
EPS adjusted and fully diluted	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
% Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
EPS reported	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
% Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
EPS Consensus								-0.39	-0.20
Cash flow per share	-0.60	-0.48	-0.66	-0.73	-0.68	-0.59	-0.44	-0.83	0.57
Book value per share	1.21	1.16	1.25	0.81	0.75	0.59	1.02	0.09	0.63
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of shares, YE (m)	4.8	6.9	8.4	11.0	15.8	17.1	26.7	26.7	26.7
Nbr of shares, fully diluted, YE (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Share price									
Latest price / year end	5.7	8.5	7.4	3.2	5.3	3.4	4.9	4.0	4.0
52 week high	7.2	13.0	8.3	8.1	7.3	5.8	5.4	5.5	
52 week low	3.1	5.5	4.5	2.9	1.7	2.9	1.9	3.5	
Average price (Year)	5.2	8.3	6.3	4.7	2.6	4.6	3.2	4.0	4.0
Enterprise value (EURm)									
Market capitalisation	25.1	57.8	52.9	51.2	41.3	78.7	84.7	106.7	106.7
Net financial debt	-0.3	-8.7	-11.2	-11.1	-14.8	-11.2	-27.2	-7.6	-22.6
Pension provisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IFRS 16 debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Market value of minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MV of equity affiliates (net of tax)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enterprise value	24.8	49.1	41.7	40.2	26.5	67.5	57.5	99.1	84.1
Valuation									
P/E adjusted	na	na	na	na	na	na	na	na	7.4
P/E adjusted and fully diluted	na	na	na	na	na	na	na	na	7.4
P/E consensus								na	na
P/BV	4.3	7.2	5.0	5.8	3.5	7.7	3.1	46.2	6.4
P/CF	na	na	na	na	na	na	na	na	7.0
Dividend yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dividend yield preference shares (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FCF yield (%)	-12.9%	-6.4%	-10.9%	-15.5%	-26.6%	-12.9%	-14.6%	-21.1%	14.0%
ROE (%)		-54.4%	-56.5%	-96.7%	-115.6%	-82.4%	-61.8%	-168.6%	151.5%
ROIC (%)		na	na	na	na	na	na	na	na
EV/Sales	72.73	na	na	na	na	na	25.43	28.82	2.05
EV/EBITDA adj.	na	na	na	na	na	na	na	na	5.2
EV/EBIT adj.	na	na	na	na	na	na	na	na	5.3
EV/NOPAT	na	na	na	na	na	na	na	na	6.2
EV/IC	na	na	na	na	na	na	na	na	na
ROIC/WACC		na	na	na	na	na	na	na	na
EV/IC over ROIC/WACC		na	na	na	na	na	na	na	na

Income statement

FY to 31/12 (EUR)	12/14	12/15	12/16	12/17	12/18	12/19	12/20	12/21E	12/22E
Sales	**0.3**	**0.2**	**0.0**	**0.0**	**0.1**	**0.4**	**2.3**	**3.4**	**41.0**
Gross profit	0.3	0.0	-0.2	-0.7	-0.2	0.3	1.3	3.4	41.0
EBITDA reported	-2.3	-4.3	-6.2	-10.2	-13.3	-10.5	-13.5	-26.2	16.1
EBITDA adjusted	**-2.3**	**-4.3**	**-6.2**	**-10.2**	**-13.3**	**-10.5**	**-13.5**	**-26.2**	**16.1**
Depreciation and amortisation	-0.1	0.0	0.0	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3
Goodwill impairment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other financial result and associates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT reported	-2.4	-4.3	-6.2	-10.3	-13.6	-10.8	-13.9	-26.4	15.9
EBIT adjusted	**-2.4**	**-4.3**	**-6.2**	**-10.3**	**-13.6**	**-10.8**	**-13.9**	**-26.4**	**15.9**
Net financial items	-0.1	-0.2	0.0	-0.1	0.1	0.0	0.0	0.0	-0.3
Associates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	-0.2	0.0	0.1	0.2	0.0	0.0
Earnings before tax	-2.5	-4.5	-6.2	-10.5	-13.4	-10.6	-13.7	-26.4	15.6
Tax	0.3	0.7	1.0	1.1	1.5	1.5	2.1	1.6	-1.1
Net profit from continuing op.	-2.2	-3.8	-5.2	-9.4	-12.0	-9.1	-11.5	-24.8	14.5
Net profit from disc. activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit before minorities	-2.2	-3.8	-5.2	-9.4	-12.0	-9.1	-11.5	-24.8	14.5
Minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit reported	**-2.2**	**-3.8**	**-5.2**	**-9.4**	**-12.0**	**-9.1**	**-11.5**	**-24.8**	**14.5**
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit adjusted	**-2.2**	**-3.8**	**-5.2**	**-9.4**	**-12.0**	**-9.1**	**-11.5**	**-24.8**	**14.5**
Sales % Change		-50.9%	-89.8%	49.9%	177.5%	406.8%	526.2%	52.0%	1093.8%
EBITDA reported % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
EBITDA adjusted % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
EBIT reported % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
EBIT adjusted % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Earnings before tax % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Net profit from cont. op. % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Net profit reported % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Net profit adjusted % Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Gross profit margin (%)	100.0%	6.7%	na	na	na	75.4%	55.6%	100.0%	100.0%
EBITDA margin (%)	na	na	na	na	na	na	na	na	39.3%
EBIT margin (%)	na	na	na	na	na	na	na	na	38.6%
Net profit margin (%)	na	na	na	na	na	na	na	na	35.2%
Tax rate (%)	13.2%	15.9%	15.5%	10.9%	10.8%	14.6%	15.7%	7.7%	6.1%
Payout ratio (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EPS reported (EUR)	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
EPS adjusted (EUR)	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
EPS adj and fully diluted (EUR)	-0.46	-0.54	-0.62	-0.85	-0.76	-0.53	-0.43	-0.93	0.54
DPS (EUR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DPS,preference shares (EUR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EPS reported % Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
EPS adjusted % Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
EPS adj and fully diluted % Change		-chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
DPS % Change									
Consensus Sales (EURm)								4.5	10.0
Consensus EBITDA (EURm)								-13.9	-10.9
Consensus EBIT (EURm)								-12.7	-8.1
Consensus EPS (EUR)								-0.39	-0.20
Consensus DPS (EUR)									

Cash flow statement

Market data as of: 21 July 2021

FY to 31/12 (EUR)	12/14	12/15	12/16	12/17	12/18	12/19	12/20	12/21E	12/22E
Net profit before minorities	-2.2	-3.8	-5.2	-9.4	-12.0	-9.1	-11.5	-24.8	14.5
Depreciation and amortisation	0.1	0.0	0.0	0.1	0.3	0.3	0.3	0.3	0.3
Goodwill impairment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in working capital	-0.8	0.4	-0.3	1.2	0.9	-1.4	-0.6	2.3	0.5
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Levered post tax CF before capex	**-2.9**	**-3.4**	**-5.5**	**-8.1**	**-10.8**	**-10.2**	**-11.8**	**-22.2**	**15.2**
% Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Capex	-0.4	-0.4	-0.2	0.1	-0.2	0.0	-0.6	-0.3	-0.3
Free cash flow	**-3.2**	**-3.7**	**-5.7**	**-7.9**	**-11.0**	**-10.2**	**-12.4**	**-22.5**	**14.9**
% Change		-chg	-chg	-chg	-chg	+chg	-chg	-chg	+chg
Acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Divestments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividend paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Share buy back	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital increases	3.7	12.2	7.7	7.7	15.1	7.4	28.5	0.0	0.0
Others	2.4	-3.3	0.5	0.0	-0.2	-0.3	0.0	3.0	0.0
Change in net financial debt	**-2.9**	**-5.1**	**-2.5**	**0.2**	**-3.9**	**3.1**	**-16.1**	**19.5**	**-14.9**
Change in cash and cash equiv.		5.3	2.5	-0.1	3.7	-3.6	16.0	-19.5	14.9
Attributable FCF	-3.2	-3.7	-5.7	-7.9	-11.0	-10.2	-12.4	-22.5	14.9
Cash flow per share (EUR)	-0.60	-0.48	-0.66	-0.73	-0.68	-0.59	-0.44	-0.83	0.57
% Change		+chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
FCF per share (EUR)	-0.67	-0.54	-0.68	-0.72	-0.70	-0.59	-0.46	-0.84	0.56
% Change		+chg	-chg	-chg	+chg	+chg	+chg	-chg	+chg
Capex / Sales (%)	102.6%	219.8%	na	-568.4%	324.2%	3.6%	25.7%	8.2%	0.7%
Capex / D&A (%)	486.4%	na	775.6%	-180.5%	74.9%	4.2%	178.7%	99.5%	108.8%
Cash flow / Sales (%)	na	na	na	na	na	na	na	na	37.1%
FCF / Sales (%)	na	na	na	na	na	na	na	na	36.4%
FCF Yield (%)	-12.9%	-6.4%	-10.9%	-15.5%	-26.6%	-12.9%	-14.6%	-21.1%	14.0%
Unlevered FCF Yield (%)	-12.6%	-7.2%	-13.8%	-19.5%	-41.5%	-15.1%	-21.5%	-22.7%	18.1%

Balance sheet

FY to 31/12 (EUR)	12/14	12/15	12/16	12/17	12/18	12/19	12/20	12/21E	12/22E
Cash and cash equivalents	3.3	8.7	11.2	11.1	14.8	11.2	27.2	7.6	22.6
Inventories	0.0	0.0	1.0	0.2	0.4	0.3	1.7	0.8	1.0
Accounts receivable	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Other current assets	0.8	1.4	1.6	2.2	2.6	2.7	3.8	4.1	4.6
Current assets	**4.1**	**10.0**	**13.8**	**13.5**	**17.9**	**14.2**	**33.5**	**12.6**	**28.1**
Tangible assets	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1
Goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Intangible assets	0.4	0.1	0.1	0.1	0.0	0.4	0.8	0.7	0.6
Financial assets	0.2	0.4	0.5	0.3	0.6	0.5	0.7	0.8	0.8
Other non-current assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-current assets	**0.6**	**0.5**	**0.7**	**0.4**	**0.6**	**0.9**	**1.5**	**1.5**	**1.5**
Short term debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accounts payable	0.6	1.4	2.2	3.3	4.7	3.4	6.0	6.9	8.0
Other short term liabilities	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7
Current liabilities	**0.8**	**1.8**	**2.7**	**3.8**	**5.3**	**3.9**	**6.6**	**7.6**	**8.7**
Long term debt	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pension provisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IFRS16 Debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other long term provisions	0.0	0.0	0.0	0.0	0.3	0.3	0.5	0.5	0.5
Other long term liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-current liabilities	**3.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.5**	**0.5**	**0.5**
Shareholders' equity	5.8	8.0	10.5	8.9	11.9	10.2	27.1	2.3	16.8
Minority interests	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total equity	**5.8**	**8.0**	**10.5**	**8.9**	**11.9**	**10.2**	**27.1**	**2.3**	**16.8**
Balance sheet total	**9.7**	**9.8**	**13.2**	**12.7**	**17.4**	**14.4**	**34.2**	**10.3**	**25.9**
% Change		1.3%	34.9%	-4.4%	37.8%	-17.4%	137.5%	-69.8%	150.1%
Book value per share (EUR)	1.21	1.16	1.25	0.81	0.75	0.59	1.02	0.09	0.63
% Change		-4.4%	8.3%	-35.6%	-6.8%	-21.1%	71.5%	-91.5%	625.6%
Net financial debt	-0.3	-8.7	-11.2	-11.1	-14.8	-11.2	-27.2	-7.6	-22.6
IFRS16 Debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pension provisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net debt	-0.3	-8.7	-11.2	-11.1	-14.8	-11.2	-27.2	-7.6	-22.6
Net fi. debt (+IFRS16) / EBITDA (x)	0.1	2.0	1.8	1.1	1.1	1.1	2.0	0.3	-1.4
Trade working capital	-0.6	-1.4	-1.2	-3.1	-4.3	-3.0	-3.5	-6.1	-7.0
Net working capital	0.0	-0.4	-0.1	-1.4	-2.3	-0.9	-0.3	-2.6	-3.1
NWC/Sales	-10.6%	-252.0%	-608.8%	na	na	-245.6%	-13.6%	-75.9%	-7.6%
Inventories/sales	0.0%	8.3%	5,902.8%	735.4%	592.1%	92.2%	77.2%	24.3%	2.4%
Invested capital	0.0	-0.4	0.0	-1.3	-2.2	-0.9	-0.2	-2.5	-3.0
Net fin. debt / FCF (x)	0.1	2.3	2.0	1.4	1.3	1.1	2.2	0.3	-1.5
Gearing (%)	-5.3%	-107.9%	-106.4%	-125.0%	-124.7%	-109.8%	-100.1%	-329.2%	-134.5%
Goodwill / Equity (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Rating Breakdown	A	B
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Hold	36%	23%
Reduce	8%	4%
Not Rated/Under Review/Accept Offer	2%	7%
Total	100%	100%

Source: Kepler Cheuvreux
A: % of all research recommendations
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Company Name	Date	Business Line	Rating	Target Price	Closing Price
AstraZeneca (GBP)	28/05/2021 07:21	Equity Research	Buy	9000.00	8100.00
Bayer (EUR)	01/10/2020 08:30	Equity Research	Under Review		53.31
	08/10/2020 08:15	Equity Research	Buy	59.00	45.30
	03/03/2021 08:17	Equity Research	Buy	62.00	52.06
	23/03/2021 08:10	Equity Research	Buy	68.00	53.28
Merck KGaA (EUR)	04/08/2020 08:13	Equity Research	Buy	130.00	112.30

	17/09/2020 08:15	Equity Research	Buy	134.00	124.30
	28/10/2020 09:24	Equity Research	Buy	144.00	135.20
	16/02/2021 08:13	Equity Research	Buy	151.00	143.10
Quantum Genomics (EUR)	23/09/2020 08:02	Equity Research	Buy	7.80	2.20
	20/10/2020 07:09	Equity Research	Buy	8.70	3.25
Sanofi (EUR)	09/04/2021 08:11	Equity Research	Buy	105.00	84.71

Credit research does not issue target prices. Left intentionally blank.

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