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Quantum Genomics

Quantum Genomics accélère, résultats de phase II en novembre

Le 12 novembre prochain, Quantum Genomics publiera avec six mois d'avance les premiers résultats de l'étude NEW HOPE.

Quantum Genomics accelerates, phase II results in November

On November 12th, Quantum Genomics will publish six months in advance the top line results from NEW HOPE clinical trial.

Opinion	**1. Strong Buy**
Closing Price 2/11/2018	**2,95 €**
Target Price	**10,85 € (+268,3 %)**

Quantum Genomics, accélère sa R&D et attend plusieurs résultats d'études cliniques

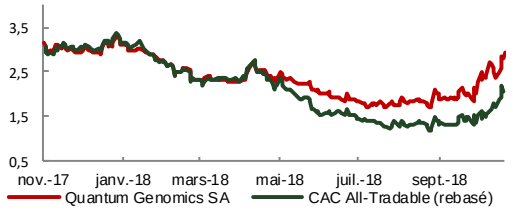
Avec six mois d'avance, Quantum va dévoiler les premiers résultats de son étude NEW-HOPE en novembre 2018. Par ailleurs, Quantum Genomics a aussi dévoilé le design de son étude clinique de phase IIb pour tester le firibastat (QGC001) dans l'insuffisance cardiaque. Consécutivement à la mise en place de son plan stratégique « BAPAIs Fast Growth », Quantum Genomics a fortement augmenté ses activités de R&D (+75%). Les investissements de R&D représentaient 5,67 millions d'euros au 30 juin 2018 contre 3,23 millions in juin 2017. Pour toutes ces raisons, nous augmentons notre objectif de cours à 10,85 euros/action.

Quantum Genomics accelerates its R&D in anticipation of several clinical study results.

With six months in advance, Quantum will unveil the first results of its NEW-HOPE study in November 2018. In addition, Quantum Genomics unveiled the design of its phase IIb clinical study to test firibastat (QGC001) in heart failure. In response to the implementation of its "BAPAIs Fast Growth" strategic plan, Quantum has intensified its R & D activities. R & D investments amounted to € 5.67 million at June 30, 2018 compared to € 3.23 million in June 2017 and increased by 75%. For all these reasons, we increase our price target at 10.85 euros/share.

Performances

Absolute perf.	1 month	6 months	12 months
	-13,9 %	-52 %	-63,7 %



Market data

Reuters / Bloomberg ticker	ALQGC.PA / ALQGC.FP
Market capitalisation (€m)	36,7 M€
Enterprise value (€m)	36,7 M€
Free Float	28,3 M€ (77 %)
Number of shares	11 999 373
Daily volume	108 396 €
Capital turnover rate (1 year)	74,7%
High (52 weeks)	3,31 €
Low (52 weeks)	1,70 €

Current shareholding structure

Free float : 75 % ; French investors 16,19 % ; Management : 8,7 %

Agenda

Late-breaking session with top-line results of phase II NEW HOPE trial at AHA meeting in Chicago Nov 10th
Press release top-line results NEW HOPE study published on Nov 12th

Key figures

	2016	2017	2018E	2019E	2020E
Revenues(M€)	0,0	0,0	0,0	0,0	34,0
Change (%)	-	-	-	-	-
EBITDA (M€)	-6,2	-10,2	-10,2	-10,2	23,8
EBIT (M€)	-6,2	-10,3	-10,3	-10,3	23,7
EBIT Margin (%)	*NS*	*NS*	*NS*	*NS*	*NS*
Net profit gp sh. (	-5,2	-9,4	-8,4	-8,4	18,8
Net margin (%)	*NS*	*NS*	*NS*	*NS*	*55,3%*
EPS	-0,62	-0,85	-0,76	-0,76	1,71

Ratios

	2016	2017	2018E	2019E	2020E
VE / CA	NS	NS	NS	NS	0,9
VE / EBIT	NS	NS	NS	NS	1,3
VE / REX	NS	NS	NS	NS	1,3
P / E	NS	NS	NS	NS	NS
Gearing (%)	NS	-252,4%	-126,2%	-126,2%	-126,2%
Net debt/ EBITDA	1,8	1,1	0,5	0,5	-0,2
RCE (%)	NS	NS	NS	NS	NS

NEW HOPE : les premiers résultats, le 10 novembre 2018 avec plus de 6 mois d'avance

Durant le congrès de l'association Américaine du Cœur (AHA), qui se tient cette année à Chicago, Quantum Genomics présentera les principaux résultats de l'essai clinique de phase IIb NEW HOPE. Le professeur Keith Ferdinand, investigateur principal de l'étude présentera ces résultats lors d'une session consacrée aux dernières nouveautés scientifiques (« late-breaking science session »). NEW HOPE cherchait à évaluer l'efficacité et la tolérance du firibastat dans le traitement de l'hypertension artérielle chez des patients à haut risque cardiovasculaire d'origine ethnique diverse. Lors du recrutement de l'essai NEW HOPE, l'objectif initial des 50% a été dépassé, avec 54% de patients appartenant aux minorités ethniques. Dès les années 60, plusieurs études (étude du comté d'Evans, étude Charleston Heart Study) avaient rapporté des différences ethniques significatives pour les maladies cardiovasculaires chez l'adulte. Ainsi, on estime que le risque attribuable à l'hypertension serait chez les hommes caucasiens était de 23,8%, contre 45,2% chez les hommes mélanodermes (afro-américains), également de 18,3% chez les femmes caucasiennes, contre 39,5% chez les femmes mélanodermes. Un second élément particulièrement important était le taux initial de pression artérielle des patients recrutés dans l'étude. En effet, les résultats de la phase IIa du firibastat dans l'hypertension artérielle (T1 2015) avait montré que la diminution de la tension artérielle était d'autant plus élevée chez les patients ayant une hypertension artérielle basale élevée.

QUORUM, une phase IIb de confirmation dans l'IC

En juin 2018, Quantum Genomics a dévoilé le design de sa phase IIb du firibastat dans l'IC pour des patients ayant subi un infarctus du myocarde et présentant une fraction d'éjection réduite. Cette étude clinique de 300 patients multicentrique, multinationale, randomisée en double aveugle permettra d'évaluer l'efficacité et la tolérance du firibastat par rapport au ramipril. En effet, dans des modèles animaux, il a été montré que l'inhibition de l'angiotensine III centrale réduisait l'hyperactivité sympathique et améliorait le dysfonctionnement ventriculaire gauche, l'une des causes essentielles de l'IC post IM.

Pourquoi le firibastat dans l'insuffisance cardiaque (IC) ?

Nous voyons trois raisons majeures pour lesquelles Quantum Genomics a positionné le firibastat dans l'insuffisance cardiaque. Tout d'abord, médicalement, il existe un certain nombre de besoins médicaux non satisfaits dans cette indication complexe et évolutive au décours de laquelle le cœur perd peu à peu sa capacité à pomper le sang. L'IC est souvent consécutive à un infarctus du myocarde (IM) et peut donc être un facteur de comorbidité et de mortalité. En effet, de plus en plus souvent traitée par angioplastie (ballonnet gonflable élargissant l'artère rétrécie ou bloquée), on observe l'apparition d'une IC dans environ 25% des cas d'angioplastie.

Scientifiquement, des données récentes postulent que l'IC peut être considéré aujourd'hui comme consécutive à un déséquilibre neuro-hormonal impliquant deux systèmes : le système de peptides dit natriurétiques et le système RAA (Rénine Angiotensine Aldostérone), souvent associé à une hyperactivité du système sympathique.

NEW HOPE: first results in November 10th, 2018 with more than 6 months in advance

During the American Heart Assocciation meeting in Chicago, Quantum Genomics will present top-line results of its phase IIb NEW HOPE study. Prof. Keith Ferdinand, principal investigator of NEW HOPE will hold an oral presentation of the results (efficacy & safety) during a late breaking event "At the forefront of risk reduction" to present the top-line results. The phase IIb NEW HOPE trial was studying efficacy and safety of firibastat for the treatment of arterial hypertension in a high-risk diverse population. With 54% of patients belonging to ethnic minorities, the initial target of 50 % had been exceeded. Since the 1960s, several studies (study of Evans County, Charleston Heart Study) had reported ethnics disparities in cardiovascular disease in adults. Thus, it is estimated that the risk attributable to hypertension in caucasian men was 23.8%, compared to 45.2% in melanoderm men (Afro-American) also was 18.3% in caucasian women, against 39.5% in melanoderm women. A second element was the initial rate of blood pressure of the patients recruited in the study. Indeed, results from phase IIa of firibastat in hypertension (Q1 2015) had shown that the decrease in blood pressure was even higher in patients with high basal hypertension.

QUORUM, a phase IIb confirmation in heart failure

In June 2018, Quantum Genomics unveiled the design of its firibastat phase IIb in heart failure for patients with myocardial infarction and reduced ejection fraction. This clinical study multi-centric, multinational, randomized, double-blind of 300 patients will evaluate the efficacy and safety of firibastat versus ramipril. Indeed, animal models have shown that inhibition of central angiotensin III reduces sympathetic hyperactivity and improves left ventricular dysfunction, one of the main causes of post-MI heart failure. Because patients who survive an acute myocardial infarction, suffer during the pathology of cardiac remodeling often associated with heart failure.

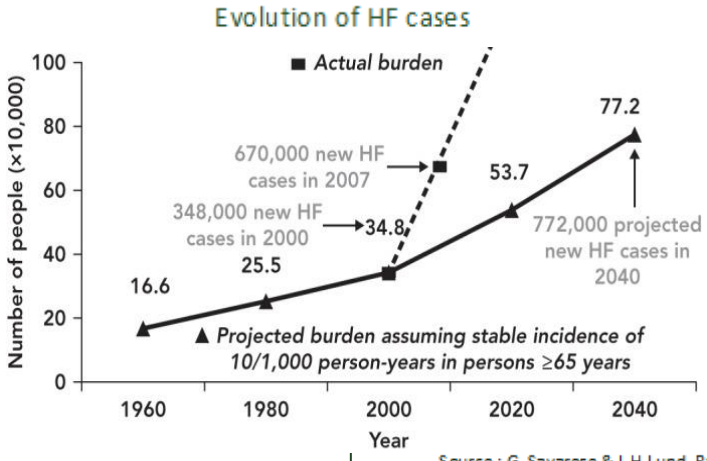
Why firibastat in heart failure?

We see three major reasons why Quantum Genomics has positioned firibastat in heart failure. First, medically there are several unmet medical needs in this complex and evolving indication that the heart gradually loses its ability to pump blood. Heart failure is often consecutive to myocardial infarction (MI) and can therefore be a factor in comorbidity and mortality. Because more and more often treated by angioplasty (inflatable balloon widening a narrowed or blocked artery), the occurrence of heart failure in about 25% of cases.

Scientifically recent data postulate that heart failure can be considered today because of a neuro-hormonal imbalance involving two systems: the system of so-called natriuretic peptides and the RAA system (Renin Angiotensin Aldosterone), and often associated with hyperactivity of the sympathetic system.

Comme a pu le démontrer Quantum Genomics dans différents travaux précliniques, le système RAA central, par son triple mode d'action (réduction de la sécrétion de vasopressine, réduction de l'activité du nerf sympathique et accroissement du baroréflexe) participe notamment à la diminution de l'hyperstimulation sympathique.

As Quantum Genomics has demonstrated in various preclinical studies, the central RAA system by its triple mode of action (reduction of vasopressin secretion, reduction of sympathetic nerve activity and increase of baroreflex) contributes to the decrease of sympathetic hyperstimulation.



Source : G. Savarese & L H Lund, Radcliffe Cardiology 2017

De plus, comme nombre de molécules qui réduisent l'hypertension, le firibastat agit sur l'IC, car une pression sanguine élevée est un facteur de risque et d'aggravation de cette pathologie.

In addition, as many molecules that reduce hypertension, firibastat acts on the heart failure, because a high blood pressure is a risk factor and aggravation of this pathology.

Enfin, avec près de 26 millions de personnes atteintes dans le monde, l'insuffisance cardiaque apparaît de plus en plus comme une véritable pandémie. Par ailleurs, c'est l'affection cardiovasculaire dont l'incidence au sein de la population mondiale, croît le plus rapidement. Une situation, née notamment du vieillissement de la population mondiale, de l'amélioration constante des traitements médicaux ainsi que la transformation des habitudes de vie dans certains pays. Cela se traduit par une incidence de près de 2 millions de nouveaux cas/an. Différentes études estiment que le marché de l'insuffisance cardiaque pour les 7 principales nations (Allemagne, Espagne, France, Grande Bretagne, Italie, Japon, USA) pourrait passer de 3,7 milliards de dollars (2016) à 16,1 milliards en 2026 affichant un TCAM de 15,7% sur la période.

Third, with nearly 26 million people worldwide, heart failure is becoming more of a pandemic. On the other hand, it is the cardiovascular disease whose incidence among the World population grows fastest. A situation, which is the consequence of the aging of the world population, the constant improvement of medical treatments and the transformation of lifestyle in some countries. This translates into an incidence of nearly 2 million new cases / year. Different studies estimate that the heart failure market for the seven main nations (Germany, Spain, France, Great Britain, Italy, Japan, USA) could increase from $3.7 billion (2016) to $16.1 billion in 2026 with a CAGR of 15.7% over the period.

Résultats financiers

Pour donner suite à la mise en place de son plan stratégique « BAPAIs Fast Growth », Quantum a intensifié ses activités de R&D. Les investissements de R&D qui s'établissent à 5,67 M€ au 30 juin 2018 contre 3,23 M€ en juin 2017, ont progressé de 75%. Le résultat d'exploitation ressort -6,8 M€ contre -4,5 M€ au 30 juin 2017. Après comptabilisation du crédit d'impôt recherche pour 0,7 M€, Quantum Genomics enregistre un résultat net de -6,2 M€, contre -4,0 M€ au 1er semestre 2017. Sa trésorerie disponible atteint 6,0 M€, contre 11,1 M€ au 31 décembre 2017, à laquelle s'ajoute une ligne de financement en fonds propres de 24 M€ accordée par Kepler Cheuvreux, dont 0,7 M€ ont été utilisés au cours du premier semestre.

Financial results

In response to the implementation of its "BAPAIs Fast Growth" strategic plan, Quantum has increased its R & D activities. R & D investments amounted to € 5.67 million at June 30, 2018 compared to € 3.23 million in June 2017 and increased by 75%. Operating income amounted to € -6.8 million versus € -4.5 million at June 30, 2017. After recognition of the research tax credit for € 0.7 million, Quantum Genomics recorded a net profit of € -6.2 M, compared to € -4.0 M in the first half of 2017. Its free cash flow amounted to € 6.0 M, compared to € 11.1 M as at 31 December 2017, to which is added an equity line of credit of 24 € million with Kepler Cheuvreux, of which € 0.7 million was used during the first half of the year.

Méthode de Valorisation

rNPV

Nous utilisons La méthode de la valeur actualisée nette ajustée en fonction du risque (rNPV), car elle nous semble être la plus appropriée pour une telle entreprise. Le facteur de risque a été calculé en fonction de la probabilité de réussite à chaque stade de développement clinique. Pour le firibastat, nous avons obtenu une valeur pour la société de 120,2 M€, soit 10,85€/action. Cette évaluation met l'accent sur le fort potentiel du marché pour firibastat, qui cible deux populations de patients avec des besoins médicaux importants : les hypertendus à faible taux de rénine et les insuffisants cardiaques. Il prend également en compte le risque associé à un médicament candidat. À notre avis, la principale tendance de la société sera sa capacité à nouer un partenariat sous licence afin de poursuivre le développement du firibastat au-delà de la phase II.

Après actualisation du free cashflow ajusté au risque à un WACC de 13,98 %, nous obtenons une valeur de 10,85 € par action.

Valorisation

Nous maintenons notre prix cible sur Quantum Genomics à 10,85 €/action, qui offre un potentiel de hausse substantiel. Nous serons très certainement amenés à revoir notre valorisation lors de la publication des résultats de l'étude New HOPE le 10 novembre prochain lors du congrès annuel de l'AHA (American Heart Association). Nous attendons aussi les résultats de l'essai de phase IIa dans l'insuffisance cardiaque, l'étude QUID-HF. Ces résultats devraient attirer l'attention des grands laboratoires pharmaceutiques. Par ailleurs, Quantum démontre sa capacité à avancer rapidement puisque les développements sont en avance par rapport au calendrier initial.

News Flows

- 10 Novembre 2018 : Présentation des principaux résultats de l'essai NEW HOPE dans l'hypertension artérielle lors de l'AHA à Chicago.
- 12 novembre 2018 : Communiqué de presse et conférence téléphonique sur les principaux résultats de NEW HOPE
- S2 2018 : initiation d'une phase IIb dans l'insuffisance cardiaque.
- T2 2019 : Résultats de l'essai clinique (pharmacocinétique et dynamique) d'évaluation des comprimés à libération prolongée de firibastat.

Valuation method

rNPV

The Risk-Adjusted Net Present Value (rNPV) method is used because we believe it is the most appropriate approach for such a company. The risk factor was calculated considering the probability for firibastat to succeed in each clinical development stage. Considering firibastat, we obtained a value for the company of €120.2M or €10.85/share. This valuation reflects the strong market potential for firibastat which targets two patient populations with strong medical needs: hypertension patients with low renin and those showing heart failure. It also considers the risk associated with a drug candidate which must demonstrate its efficacy in human subjects. The key trend in our view for the company will be its ability to sign an out-license partnership to pursue firibastat development beyond phase II.

After discounting the risk adjusted free cashflow at a WACC of 13.98 %, we get to a rNPV valuation of €10.85 per share.

Valuation

We are maintaining our target price on Quantum Genomics at € 10.85/share, which offers substantial upside potential. We will certainly be led to review our valuation when Quantum Genomics will be publishing the results of the NEW HOPE (10 November) at the AHA (American Heart Association) annual meeting. We are also expecting the results of the phase IIa in Heart Failure, the QUID-HF study. These results should attract the attention of major pharmaceutical companies. In addition, Quantum demonstrates its ability to move quickly as developments are ahead of schedule.

News Flows

- November 10th, 2018: Top-line results of the NEW HOPE trial in arterial hypertension at the AHA Chicago
- November 12th, 2018: Press release and conference call on top-line results of NEW HOPE trial.
- H2 2018: Initiation of a phase IIb in heart failure.
- Q2 2019: Results of the clinical trial (PK and PD) studying the extended-release firibastat tablets.

Valuation

rNPV

Discount rate calculation

The discount rate results from the weighted average rate between the capital cost and the cost of financial debt. The cost of capital is calculated based on the CAPM model to which is added a Small Cap risk premium according to the following formula:

Cost of capital = Rf +beta * (Rm-Rf) + Small Caps risk premium

Rf: risk free rate; (Rm-Rf): stock market risk premium

Depending on the company size, we add a Small Caps premium to the cost of capital. The Small Caps premium is calculated according to six criteria which are objectively evaluated. For each criterion, there are five increments from - - to + +. Each move upwards adds 20 basis points to the cost of capital.

Please find below the criteria table:

Criterium	Notation scale				
	++	+	=	-	--
Company governance [1]	4	3	2	1	0
Liquidity[2]	[66 % ; 100 %]	[33 % ; 66 %[	[15 % ; 33 %[	[5 % ; 15 %[	[0 % ; 5 %[
Revenues size (€m)	[150 ; +∞[	[100 ; 150[	[50 ; 100[	[25 ; 50[	[0 ; 25[
Operating profitability	[25 % ; 100 %]	[15 % ; 25 %[	[8 % ; 15 %[	[3 % ; 8 %[	[0 % ; 3 %[
Gearing	]-∞ % ; -15 %]	]-15 % ; 15 %]	]15 % ; 50 %]	]50 % ; 80 %]	]80 % ; +∞[
Clients risks [3]	[0 % ; 10 %]	]10 % ; 20 %]	]20 % ; 30 %]	]30 % ; 40 %]	]40 % ; 100 %]

In the case of Quantum Genomics, we obtain the following matrix:

	++	+	=	-	--	Small Caps
Company governance						0,40%
Liquidity						0,60%
Revenues size						1,00%
Operating profitability						1,00%
Gearing						0,20%
Client risk						1,00%
TOTAL						**4,20%**

Based on the prevalent risk free of 0.72%, a market risk premium of 6.75% (source: Fairness Finance, Market Risk Premia), a beta of 1.34, a Small Caps risk premium of 4.2%, we get to a discount rate of 13.98%.

Risk Free Rate	Risk premium	Beta	Small Caps risk premium	Cost of capital	Cost of debt	Financial leverage	Tax rate	WACC
0.72%	6.75%	1.34	4.2%	14.0%	N/A*	0.0%	25.0%	13.98%

* The cost of debt criterion is not applicable to Quantum Genomics since they reported negative net debt.

Source: Agence France Trésor, Fairness Finance, Market Risk Premia, Damodaran, Genesta estimates

The Risk-Adjusted Net Present Value (rNPV) method, was used since we believe it is the most appropriate method for such a company. The risk factor was calculated considering the probability for firibastat to succeed in each clinical development stage (see following table "Typical transition rate for drug development" updated from Keagan, Wiley Finance, 2008.

[1] Company's governance is evaluated through the 4 following criterions: separation of functions between president and top management or functioning as a supervisory board and a board of directors; presence of independent members in the board of trustees or in the supervisory board; presence of censors or control board; existence of specialized committees.

[2] Percentage of capital exchanged in the last 12 months

[3] Sales parts represented since by the 5 most important clients.

Typical transition rates for drug development

Phase	Transition Rate	Probability to reach the market
Phase IIa	70-80%	20-35%
Phase IIb	70-80%	30-45%
Overall Phase II	50-65%	20-45%
Phase III	50-65%	45-55%
Registration	90%	90%

Source: Karl Keegan, Wiley Finance (2008)

Enterprise value calculation

We assume that, firibastat will be launched in 2023 for hypertension indication. Firibastat targets the Low Renin, High Vasopressin (LRHV) sub-population of hypertensive patients, which represent 60% to 70% of 12,5% of resistant hypertensive people. For valuation purposes, we only considered the following 3 regions: European Union, the United States and Canada, and Asia (China, Japan, South Korea and India) + Russia. Assuming a 10% to 20% penetration rate depending on region, we estimate that firibastat can target more than 4 million people annually in these markets. Furthermore, we assume an annual cost for Quantum' firibastat of €920/patient in the US and of €300 in Europe and in Asia, based on Novartis' Aliskiren prices. We estimate firibastat annual peak sales around €1.5 bn.

Quantum Genomics intends to license the drug to a partner at the end of the phase 2a clinical trials, revenue forecast was calculated based on milestones and royalty payments. Our hypotheses consider a 12% royalty rate on total sales. The total milestones were estimated at €230m. Using our 13.98% discount rate, we obtain the following risk-adjusted cashflow statement for the period 2018E – 2027E and the current valuation for the hypertension programme has a net value of € 97.32m.

Hypertension	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Total revenues	**0,0**	**0,0**	**0,0**	**34,0**	**0,0**	**65,6**	**12,5**	**103,1**	**99,4**	**259,4**	**257,3**
Clinical cost	4,0	4,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Inserm Royalties	0,0	0,0	0,0	5,1	0,0	9,8	1,9	15,5	14,9	38,9	38,6
Overhead	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Total Cost	**5,3**	**5,3**	**1,3**	**6,4**	**1,3**	**11,1**	**3,1**	**16,7**	**16,2**	**40,2**	**39,8**
EBITDA	**(5,3)**	**(5,3)**	**(1,3)**	**27,7**	**(1,3)**	**54,5**	**9,4**	**86,4**	**83,3**	**219,3**	**217,5**
Taxes	0,0	0,0	0,0	9,1	0,0	18,0	3,1	28,5	27,5	72,4	71,8
Cash Flows	(5,3)	(5,3)	(1,3)	18,5	(1,3)	36,5	6,3	57,9	55,8	146,9	145,7
Likelihood 2018	100,0%	100,0%	32,0%	32,0%	32,0%	32,0%	32,0%	32,0%	32,0%	32,0%	32,0%
Risk Adjusted CF	**(5,3)**	**(5,3)**	**(0,4)**	**5,9**	**(0,4)**	**11,7**	**2,0**	**18,5**	**17,9**	**47,0**	**46,6**

We model the target market as the 10% of congestive heart failure who are poorly controlled. This penetration rate is relatively conservative, but we assume that firibastat in function of QUID-HF results could gain a higher peak penetration (15-25%) related to the severity of the disease and the strong unmet medical need. For valuation purposes, we only considered the following 3 regions: European Union, the United States and Canada, and Asia. We estimate that firibastat can target more than 2.5 million people annually in these markets, with an annual peak sale of €912m. The annual cost for Quantum' firibastat in heart failure will be considered conservatively at €850/patient in the US and of €320 in Europe and in Asia.

As Quantum Genomics intends to license the drug to a partner at the end of the phase 2b clinical trials, revenue forecast was calculated based on milestones and royalty payments. Our hypotheses consider a 12% royalty rate on total sales. The total milestones were estimated at €131M. Using our 13.98% discount rate, we obtain the following risk-adjusted cashflow statement for the period 2018E – 2027E and a current valuation for the heart failure programme of €23.0m.

Heart failure	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Total revenues	**0,0**	**0,0**	**0,0**	**0,0**	**12,0**	**0,0**	**22,7**	**68,2**	**64,7**	**117,7**	**92,7**
Clinical cost	1,5	1,5	6,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Inserm Royalties	0,0	0,0	0,0	0,0	1,8	0,0	3,4	10,2	9,7	17,6	13,9
Overhead	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Total Cost	**2,8**	**2,8**	**7,3**	**1,3**	**3,1**	**1,3**	**4,7**	**11,5**	**10,9**	**18,9**	**15,2**
EBITDA	**(2,8)**	**(2,8)**	**(7,3)**	**(1,3)**	**9,0**	**(1,3)**	**18,0**	**56,7**	**53,7**	**98,8**	**77,6**
Taxes	0,0	0,0	0,0	0,0	0,0	0,0	6,2	17,3	17,6	35,1	32,1
Cash Flows	(2,8)	(2,8)	(7,3)	(1,3)	9,0	(1,3)	11,9	39,5	36,1	63,6	45,5
Likelihood 2018	100,0%	100,0%	100,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%
Risk Adjusted CF	**(2,8)**	**(2,8)**	**(7,3)**	**(0,4)**	**2,6**	**(0,4)**	**3,4**	**11,4**	**10,5**	**18,4**	**13,2**

For the period following the forecasts, we apply a terminal growth rate in two times, and obtain the following table (in €m):

	Value	%
1-17 year period		
Hypertension	97,3	80,9%
Heart Failure	23,0	19,1%
Total	**120,3**	100,0%

Source: Genesta estimates

Thus, Quantum Genomics enterprise value stands at € 120.3million.

1.1.1 Price per share calculation

The table below details the final calculation of equity value per share.

rCF	120,3
+ Financial assets	0,4
+ Assets consolidated on an equity basis	0,0
- Provisions	0,0
- Net Financial debt	-11,1
- Minorities	0,0
+ Discounted tax loss carry forward	-1,6
= Equity value (in EUR million)	130,2
Number of shares (in million)	11,999
Share valuation (in EUR)	**10,85**

Source: Quantum Genomics, Genesta estimates

Consequently, the use of the risk-adjusted Net Present Value method values Quantum Genomics at €10.85 per share, representing an upside of +268.3 % compared to the last closing price of €2.95 on November 2nd, 2018.

2 Summary of financial statements

2.1 Simplified Income Statement

31/12 (M€)	2015	2016	2017	2018e	2019e	2020e
Revenues	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**34,0**
%change	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Ebitda	**-4,4**	**-6,2**	**-10,2**	**-10,2**	**-10,2**	**23,8**
%change	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
%of revenues	*ns*	*ns*	*ns*	*ns*	*ns*	*0,7*
Ebit	**-4,4**	**-6,2**	**-10,3**	**-10,3**	**-10,3**	**23,7**
%change	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
%of revenues	*ns*	*ns*	*ns*	*ns*	*ns*	*69,7%*
Financial income and charges	**-0,2**	**0,0**	**-0,1**	**0,0**	**0,0**	**0,0**
Earnings before tax	**-4,6**	**-6,2**	**-10,5**	**-10,5**	**-10,5**	**23,5**
Income tax	**-0,7**	**-1,0**	**-1,1**	**-2,1**	**-2,1**	**4,7**
Tax rate %)	*15,5%*	*15,4%*	*10,9%*	*20,0%*	*20,0%*	*20,0%*
Net earnings	**-3,9**	**-5,2**	**-9,4**	**-8,4**	**-8,4**	**18,8**
%change	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
%of revenues	*ns*	*ns*	*ns*	*ns*	*ns*	*55%*

2.2 Balance Sheet – Main items

31/12 (M€)	2015	2016	2017	2018e	2019e	2020e
Goodwill	0,1	0,1	0,1	0,0	0,0	0,0
Intangible assets	0,0	0,0	0,0	0,9	1,1	1,2
Tangible assets	0,1	0,1	0,1	0,0	0,1	0,1
Financial fixed assets	0,4	0,5	0,4	0,1	0,1	0,1
Working Capital Requirements	**-0,7**	**-0,3**	**-1,9**	**-1,9**	**-1,9**	**-1,9**
%of revenues	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Gross financial debts	0,0	0,0	0,0	0,0	0,0	0,0
Cash and short term investments	8,7	11,2	11,1	5,5	5,5	5,5
Net financial position (net financial debt if a minus)	**-8,7**	**-11,2**	**-11,1**	**-5,5**	**-5,5**	**-5,5**

2.3 Cash Flows Statement – Main items

31/12 (M€)	2015	2016	2017	2018e	2019e	2020e
Cashflow	**-3,7**	**-5,2**	**-9,4**	**-8,3**	**-8,3**	**18,9**
Capital expenditures	0,0	0,0	4,0	4,0	0,0	0,0
%of revenues	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Impact of working capital requirements variation	23,3	0,4	-1,6	0,0	0,0	0,0
Free cashflow	-27,0	-5,6	-11,8	-12,3	-8,3	18,9

2.4 Ratios

31/12 (M€)	2015	2016	2017	2018e	2019e	2020e
EPS (€)	**-0,6**	**-0,6**	**-0,9**	**-0,8**	**-0,8**	**1,7**
%change	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Market capitalisation (€m)	**52,5**	**41,0**	**36,7**	**36,7**	**36,7**	**36,7**
Enterprise value	52,5	29,8	25,7	31,2	31,2	31,2
P/E	**-13,4**	**-7,8**	**-3,9**	**-4,4**	**-4,4**	**2,0**
Market to Book	18,9	12,2	8,4	8,4	8,4	8,4
EV/Sales	ns	ns	ns	ns	ns	0,9
EV/Ebitda	ns	ns	ns	ns	ns	1,3
EV/Ebit	ns	ns	ns	ns	ns	1,3
Ebitda/Sales	ns	ns	ns	ns	ns	0,7
Ebit/Sales	ns	ns	ns	ns	ns	0,7
Net earnings/Sales	ns	ns	ns	ns	ns	0,6
Gearing	-3,1	-3,3	-2,5	-1,3	-1,3	-1,3

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1. Strong buy	The absolute share price performance is expected to be at least +25 %
2. Buy	The absolute share price performance is expected to be comprised between +10 % and +25 %
3. Neutral	The absolute share price performance is expected to be comprised between +10 % et -10 %
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Rating and target price evolution throughout the last 12 months

Date of 1st publication	Rating	Target Price
5th November 2018	Equity Flash **Strong Buy**	**€ 10.85**
24th April 2018	Equity Flash	**€ 9.02**
3th March 2018	Equity Flash	**€ 9.02**
15th February 2018	Equity Flash	**€ 9.02**

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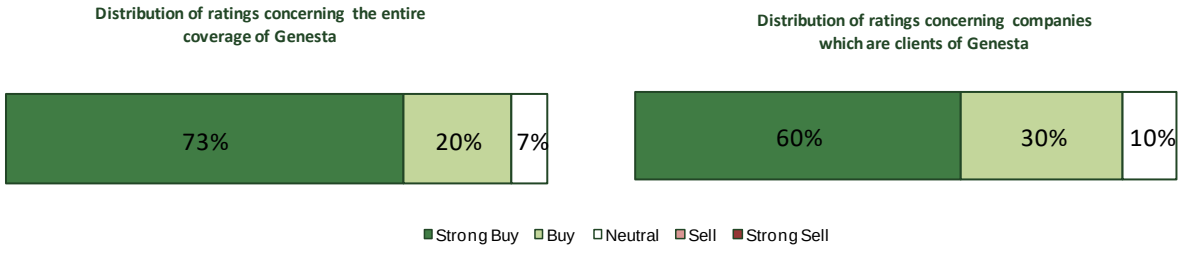

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