

A background image showing a laboratory setting with several test tubes hanging from a rack and a grid of small, round wells, possibly a microplate, in the foreground. The lighting is blue and focused on the test tubes.

**Developing first in class
cardiovascular drugs**

Top-line results - QGC001 Hypertension Phase IIa - September 29, 2016



- **Technology**
- **Strategy**
- **Top-line results**
- **Next steps**



✓ Quantum Genomics, the *BAPAI* company, is developing first in class treatments targeting a new pharmacological pathway in the brain

✓ Benefitting from more than 20 years of leading European academic research



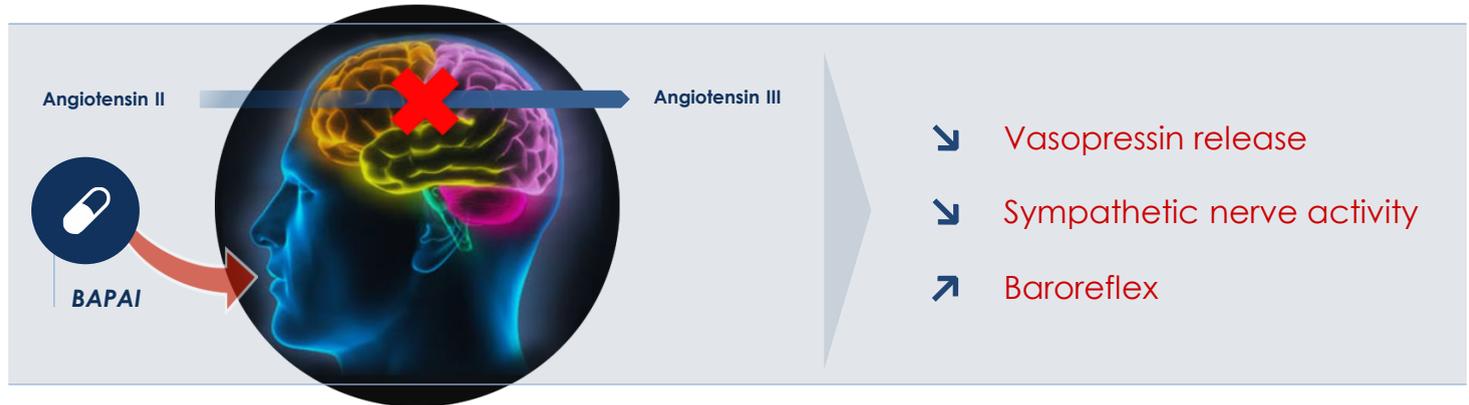
Catherine Llorens-Cortes,

PhD in Neurobiology, Director of the Central Neuropeptides and cardio-vascular hydro-regulation research team – College de France CIRB-CNRS UMR U1050 7241/INSERM



2014
Category
« Research team »

Inhibition of Aminopeptidase A



Increase of the diuresis
(urinary elimination)



Lowering vascular
resistance



Controlling
heart rate



BAPAI are innovative drugs that target
a new central pharmacological
pathway leading to both
antihypertensive effects and
cardioprotection



Mechanism of action described in several peer reviewed
academic publications:

Bodineau & al – Hypertension – 2008

Marc & al – ProgNeuroscience – 2011

Marc & al – Hypertension - 2012

- **LRHV patients (approximately 30% of total hypertensive population) have mostly uncontrolled or poorly controlled high blood pressure**
- **LRHV profile is overexpressed in elderly, Asian, African American and Hispanic populations**
- **ACEs and ARBs drugs are not effective for LRHV patients**



Quantum Genomics targeting partnerships with big pharma

Goal

Building an alliance with a pharmaceutical company to develop the BAPAI platform

Upfront/ Milestones

Financing clinical and regulatory trials starting from the signature of the license

Royalties

The partner will be in charge of marketing and sales activities
Starting sales ASAP after New Drug Approval
Quantum Genomics will receive royalties on sales

Representative Transactions

Acquirer	Developer	Indication	Status	Terms
 Bristol-Myers Squibb	 Cardioxyl PHARMACEUTICALS	Heart Failure	Phase II	Acquisition up to \$ 2 billion+, with \$300 M upfront and potentially a further \$1.775 billion based on development, regulatory and sales related milestones
 SERVIER	 xention creating new medicines	Cardiovascular	Phase I	Upfront payment + up to € 120 million license fees and milestone payments; Servier to continue development of XEN-D0103; Owns commercial rights ex US and Japan
 NOVARTIS	 Speedel	Hypertension	Phase II	Acquisition (90.3% of shares) : \$ 882.3 million

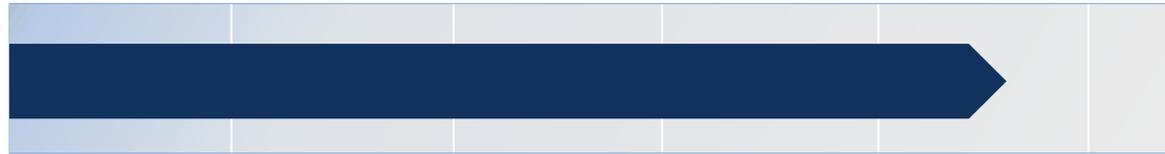
Target discovery Identification of active compounds Preclinical studies Clinical studies Phase I Clinical studies Phase II



QGC001

First-in-class

Stand alone treatment of Hypertension



Phase Ia • 2012

Randomized, double blind, placebo controlled study of single ascending doses in 80 healthy volunteers

➤ **Positive : overall safety and tolerability of QGC001 up to 2g**



Phase Ib • 2013

Randomized, double blind, placebo controlled study of multiple ascending doses in 44 healthy volunteers

➤ **Positive : overall safety and tolerability of QGC001 up to 750mg twice a day and no food interaction**



Phase IIa • Q1 2015

Initiation of a phase IIa in 30 hypertensive patients



➤ Michel Azizi, MD,

Medical Doctor, University Professor – Hospital Practitioner Director of CIC 9201 (Cardiovascular, renal, endocrine pathology and physiology)





- **4 Centers in France all labelled as “Centers of Excellence” by the European Society of Hypertension. Principal Investigator:** Pr. Michel Azizi - Hôpital Européen Georges Pompidou - Paris
- **Safety endpoints :** Evaluated from signs, symptoms and laboratory tests at each visit
- **Pharmacokinetics endpoints :** Measured twice during each of the two treatment periods
- **Efficacy endpoints include :**
 - 24 hours ambulatory blood pressure measurement (ABPM)
 - Home blood pressure measurement (HBPM)
 - Office blood pressure measurement (OBPM)
 - Hormonal measurement of several biomarkers

- **Convergence of positive signals on several endpoints**
- **Especially regarding the primary endpoint: drop in daytime systolic blood pressure measured as ambulatory pressure in hypertensive patients, treated with QGC001 as compared to placebo**
- **Positive result confirmed by in-depth multivariate analysis**

- **Global quality of data recognized by investigators**
- **Patients are truly hypertensive**
- **Excellent quality of ABPM data**
- **No placebo effect**

 **Full data to be presented at major medical meeting, preferably European Society of Hypertension conference (June 2017 in Milan)**

In the US, start of a phase II on a targeted population in 2017

Further targeted studies in preparation:

- In Asia
- In Europe, with focus on biomarkers



Pre-IND meeting with the FDA Reviewing Division on the Clinical, Non-clinical, and the Chemistry, Manufacturing, Control Development of the study.

- The FDA has reviewed and analyzed the entire QGC001 documentation, including all preclinical and clinical data available to date, including phase IIa trial methodology and efficacy and tolerance data.
- Expect to submit an IND application for the trial in the first half of 2017 to evaluate QGC001 in a targeted population of hypertensive patients.
- Data from planned phase II trial intended to support design of phase III clinical program for QGC001 in the US.
- Enrollment of ethnic/racial minorities in this hypertension study has been encouraged by the FDA

2016

2017



Hypertension

Phase IIa:

- ✓ Inclusion of 34 patients
- ✓ Study completion in April
- ✓ Positive results released in September

Start of Phase II trials:

In the US, on targeted population

Preparing further targeted studies:

- In Asia
- In Europe, with focus on biomarkers



Heart failure

- ✓ Initiation of phase IIa in humans in Q2
- ✓ Signed agreement with existing partner in animal health

End of clinical part of phase IIa in Q4



Hypertension remains a major issue for public health

- 9.4 million deaths worldwide every year due to complications of high blood pressure⁽¹⁾
- Hypertension affects 1/3 of adults and more, with the proportion for people aged 50 and above to 1/2⁽¹⁾
- \$ 40 billion spent on anti-hypertensive drugs annually⁽²⁾



QGC001 targets a novel pharmacological pathway to offer both antihypertensive effects and cardioprotection



QGC001 brings hope to life improvement of hypertensive patients and their families



QUANTUM GENOMICS SA
Tour Montparnasse
33 avenue du Maine
75015 PARIS
FRANCE
T : + 33 (0)1.85.34.77.70

marc.karako@quantum-genomics.com