

French Capitalization

neuroATLANTIC

FINAL REPORT

28 JUNE 2022



CLUSTER
SAÚDE DE
GALICIA



Interreg
Atlantic Area
European Regional Development Fund



MEETING PARTICIPANTS

Entity	Contact
<p>Cluster Saúde de Galicia, CSG</p>  <p>CLUSTER SAÚDE DE GALICIA</p>	<p>Gisela García Álvarez – Managing Director gerencia@clustersaude.com</p> <p>Rebecca Eckhardt – Business Development business@clustersaude.com</p>
<p>Inserm (BB@C)</p>  <p>La science pour la santé From science to health</p>	<p>Denis Vivien - Professor of Cell Biology & Hospital practitioner <i>Consortium member neuroATLANTIC</i></p>
<p>Op2Lysis</p>  <p>Op2Lysis</p>	<p>Jérôme Parcq – Co-Founder & General Manager</p>
<p>Samdoc</p>  <p>samdoc MEDICAL TECHNOLOGIES</p>	<p>Julien Lelandais – President & Co-Founder</p>
<p>Brainomix</p>  <p>BRAINOMIX</p>	<p>Riaz Rahman – VP Healthcare Global</p>

AGENDA

Tuesday, June 28th

Cyceron - Campus Jules Horowitz
Boulevard Henri Becquerel
BP 5229
14074 CAEN Cedex 5
France

09:30 – 09:35	Welcoming
09:35 – 09:45	Round of table
09:45 – 10:10	Capitalization presentation Cluster Saúde de Galicia
10:10 – 10:30	Inserm (BB@C)
10:30 – 10:50	Op2Lysis
10:50 – 11:10	Samdoc
11:10 – 11:30	Brainomix
11:30 – 12.25	Questions and discussion
12:25 – 12:30	Closing

CAPITALIZATION MEETING

Cluster Saúde de Galicia, CSG



This meeting represented the fifth meeting organized as part of the capitalization for the Interreg Atlantic project neuroATLANTIC. The goal of this meeting was to introduce and present the project to the interested stakeholders, share the project results achieved so far, and allow the meeting participants to introduce themselves and present their entity and the work they are doing. Moreover, this meeting contributed to the creation of a network to connect companies working within the field of neurological diseases. It was a hybrid meeting hosted at

the Cycleron building in Caen, France.

Rebecca Eckhardt, Business Developer at the Cluster Saúde de Galicia (CSG), opened the meeting by giving a presentation about the neuroATLANTIC project. She briefly explained why the project was established, what the project goals are, and which entities are included in the project's consortium. She then moved on to introduce the Cluster Saúde de Galicia. The CSG is a non-profit public-private collaboration platform located in the North-West of Spain to connect the public institutions of the Galician health and social care ecosystem, with the private industry, including SMEs, research institutions, patient associations, and others, to encourage synergies and improve personal well-being within the Galician ecosystem. The CSG does this by following three pillars:

1. Collaboration

- The CSG has an extensive member portfolio.
- The CSG participates in multiple international networks and has partners across the world.

2. Innovation & Internationalization

- The CSG has created RIES → an annual showcase event for the most innovative developments in the healthcare and social care fields.
 - Great opportunity to connect, network, and learn.
- Learning Expeditions → internationalization strategy of the CSG.
- Living Lab network → the CSG has created its own private social care living lab named ITGALL. Besides, the CSG is in charge of managing the LABSAÚDE healthcare living lab of the regional Ministry of Health and collaborates with Cebiovet, which is a one-health living lab.

3. European projects

- The CSG participates in multiple European-funded projects, including the neuroATLANTIC project.

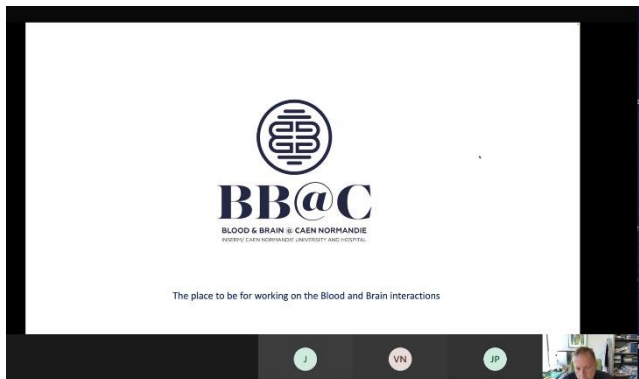
Rebecca then continued by sketching an overview of the global and French neurology fields, explaining the capitalization process, and showing the results achieved so far. The project consortium finalized the establishment of the Green Paper and R&D Mission-Oriented Guidelines, which will be shared with all interested stakeholders once published. Specific results obtained per consortium member:

- **IDIS** → a study on a standardized rat model for ischemia and a study on the development of advanced neuroimaging processing software.

- **University College Cork** → a study on fingolimod as a drug to control the immune response in other diseases like ELA, which shows neuroprotective effects in the mouse model for ischemia (stroke).
- **CICbiomaGUNE** → a study on butyrylcholinesterase (BChE), an enzyme as an in vivo biomarker of Alzheimer's Disease (shown in mouse models).
- **Inserm (BB@C)** → a study for thrombolysis in ischemic stroke by looking at tPAs (testing this on a mouse model).
- **University of Coimbra (CNC)** → recently published a paper about the modulation of cell activity by gene editing coupled with optogenetics.
 - Also developed a model for Cre-UCNPs.
- **STAB VIDA** → created **Doctor Vida**, which is a portable, handheld device for isothermal nucleic acid amplification of viral genetic biomarkers.
- **Lincbiotech** → developed **Minerva Stroke**, a software solution to accurately diagnose Stroke and predict the evolution of the infarcted patient, as well as adequately control the episodes of fever and hyperthermia to initiate the correct treatments in the early stages of the disease.
- **Qubiotech** → develop **NEUROCLOUD**, which is a cloud platform for the automatic processing of neuroimaging assisted by Artificial Intelligence.

Rebecca ended the presentation by listing the advantages of being part of the neuroATLANTIC platform.

Inserm – BB@C



Denis Vivien, Director of Brain and Blood at Caen-Normandy Institute (BB@C) and Professor of Cell Biology, took the floor and gave a presentation about the work they have been doing at BB@C. Their research group is located at Cyceron in Caen. The BB@C has four main objectives:

1. Improving research on neurovascular, neurological, and psychiatric disorders.
 - With a special focus on interactions between blood and brain cells.
2. Achieving a high level of expertise and knowledge in the domains of blood and brain research.
3. Promoting innovations and partnerships for the benefit of patients.
4. Bringing together science and the general public in a setting of mutual trust.

BB@C consists of different entities that make up its structure, such as laboratories, start-ups, CROs, and technological centers. Set-up:

- There are nine start-ups/CROs, including Op2Lysis, SAMDOC, NEURRALLYs, and ETAP-LAB (at this lab people are testing drugs for the pharma industry).
- There are four research laboratories.
- There are three technological platforms.
- There is one population-based study (NORMADYSTROKE).

Inserm and the University Caen Normande have set up multiple research teams for physiopathology and imaging of neurological disorders, including seven different groups that research tPA signaling and novel functions, Stroke and tPA, Aging and Dementia, and Neuroimaging and Stroke, among others.

- **GROUPAMA research program** → within this project they proposed to develop a model that will help with diagnosing cerebral vasculitis. By using this model they would like to introduce a non-invasive diagnostic method based on molecular imaging of adhesion molecules, which are overly present in the blood vessels of patients with cerebral vasculitis.

At BB@C they participate in multiple funded projects, they have different spin-off start-ups, they offer the use of innovative tools and their platforms, and they collaborate with international researchers to improve their research.

Op2Lysis

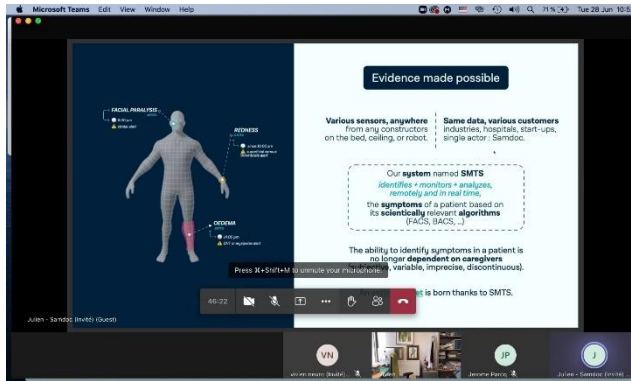


Jérôme Parcq, Co-Founder and General Manager at Op2Lysis, starts his presentation by briefly explaining what Op2Lysis is. It is a start-up working on a solution for stroke patients. Their goal is to improve the management and treatment of cerebrovascular thrombotic (stroke) diseases by offering technological solutions to hospitals, which will reduce patient dependency and associated costs.

- Their focus is mainly on hemorrhagic stroke.
 - This represents 20% of all strokes.
 - A severe form of stroke → 75% of the cases lead to death or extreme disability.
 - This form of stroke represents 50% of the stroke burden.
- Their solution, NANOp2Lysis, increases the efficiency of thrombolytic agents through nanoprecipitation technology and the incorporation of active particles into an adapted polymer.
 - O2L-001 → to remove intracerebral hematoma.
 - Minimally invasive safe surgery procedure (clinically validated in 100 patients).
 - Suitable for hospitals and neurosurgeons.
 - They expect to have the drug approval read in 2026.
 - They need an additional budget to scale up → looking for around 8 million euros.

Jérôme then ends his presentation with a clear overview of Op2Lysis by demonstrating the main takeaways. At Op2Lysis they have a strong collaborative focus, and they work with well-established academic teams (including Prof. Daniel Hanley, Johns Hopkins, USA) willing to lead clinical trials with their products.

Samdoc



Julien Lelandais, President and Co-Founder at Samdoc, started his presentation by briefly explaining what Samdoc is. It is a start-up company trying to bring digital innovation to clinical observation in and out of the hospital. Currently, patients are still being observed in person, which often results in patients only being observed for around 10 minutes per day. With the solution of Samdoc, patients can be observed 24 hours per day, including the

monitoring and diagnosing of more than 50 body symptoms without medical intervention.

- This solution provides access to data that has never been used before to all health stakeholders.

The company was founded by two physicians (Julien Lelandais and Thomas Gourmelon) and they have a multidisciplinary team that includes people with complementary skills and expertise.

They have developed multiple solutions:

- **SMTS** → this identifies, monitors, and analyses symptoms remotely and in real-time using algorithms. With this solution, observing the symptoms of a patient is no longer dependent on caregivers. The solution has eight features that include topographic calculations, time tracking, quantification, and qualifications of metrics, such as:
 - Kinematics → the ability to detect movement concerning clinical parameters.
 - Can be used for detecting facial paralysis.
 - Clinical aspect → the ability to study appearances with SMTS (recognize features of color and morphology).
 - Can be used for observing redness.
 - Geometry → capacity of geometrical calculation of clinical parameters (such as volume, surface, angles, etc.).
 - Can be used for detecting oedema.
- **NEWA** → this identifies, monitors, and analyzes pain remotely and in real-time using scientifically relevant algorithms.
 - This is in the development stage, going through clinical validation.
- **Samdoc Lab** → the company created its own laboratory for testing its solutions in clinical studies.
 - With this lab, Samdoc generates standardized data, accelerates the development of the algorithms, and quantifies the server requirements of each solution.

Julien ends the presentation by explaining the ambition of the company: they want to make their data a new way to follow and manage patients.

Brainomix



Riaz Rahman, VP of Healthcare Global at Brainomix, started his presentation by explaining how Brainomix could add value to a project like the neuroATLANTIC project. Brainomix has a high focus on partnerships globally. They work with world-class AI technologies and have a team with much experience in the NHS.

Riaz then continued to talk about the company itself and the solution they have developed.

Brainomix was founded in 2010 as a spin-out from Oxford University. Its vision is to be a world-leading AI imaging company that improves patient outcomes by enhancing doctors' decisions.

- He stressed that this company was created to support practitioners, not to replace them. Their solution will help to give more accurate information and it will raise the standards of practices.
- Brainomix is currently present in more than 30 countries globally, which includes more than 300 hospitals.

Brainomix was the first company to establish an AI-powered e-stroke platform → they launched e-ASPECTS in 2016, and in 2019 they launched the mobile application e-Stroke

- E-Stroke is a mobile application developed to optimize existing imaging modalities with minimum disruption to the workflow. It is a multimodality platform including e-ASPECTS, e-CTA, and e-CTP modules that automatically process CT images to provide prompt, clinically useful information in an acute stroke setting.
 - It enables faster treatment decisions → twice as fast as other solutions.
 - New features include a full communication platform (messaging and comment-making), CTA MPRs, and MRI research tools.
 - Within the UK and Ireland, they work with more than 80 hospitals, which allows for an extensive network using cloud forwarding.
 - They won the NHSX AI in Health and Care Award with their e-Stroke platform.

Riaz then explains that Brainomix was the only stroke AI vendor to win a national EU tender in Poland, where they will establish the biggest e-stroke network.

- They also won a Welsh tender very recently.
- They have several case studies that demonstrate the effect their platform has on healthcare.

Based on this presentation, the meeting participants asked Riaz multiple questions. One of the questions covered whether the data of the e-Stroke platform is being used for clinical trials. Riaz explained that this is starting to come through → some pharmaceutical companies are talking about drug trials they would like to do with e-Stroke. So Brainomix would be open to collaborative suggestions like these.

- Denis Vivien suggests including some aspects in the app to categorize patients so that they can be filtered for clinical trials. He further explains that French hospitals have a system in place that includes all patient data, but that the hospitals are not specialized in Artificial Intelligence.
 - Brainomix could help Op2Lysis to save time and money.
 - Riaz mentions that it is easy to show the effect of e-Stroke on the French market since the product is already mature.

CONCLUSION

On June 28th, 2022, the CSG organized the French capitalization meeting for the European Interreg Atlantic Area project neuroATLANTIC. This meeting was hosted at Cyceron in collaboration with Inserm. The goal of this meeting was to communicate the neuroATLANTIC project to the French industry, identify possible collaborations, and establish a network of different entities in the neurology field. This was a hybrid meeting and included four presentations provided by the different meeting participants.

During the meeting, information about the project was shared by the CSG with the meeting participants. Additionally, the research and work performed by the participants were discussed, and the CSG explained how it represents the neuroATLANTIC project and its ecosystem. Based on the French capitalization meeting some new opportunities and collaborations can be explored. Some conclusions from this capitalization meeting include:

- France has acknowledged the importance of addressing neurological disorders due to the increase in its elderly population and, thus, the prevalence of neurological disorders.
- Caen is a hub of neurological research, with a special focus on Stroke and other blood and brain-related diseases.
- Collaboration between the different meeting participants could take place based on mutual interests.
 - Brainomix could support French research institutions by offering data on the e-Stroke application for clinical trials.
 - Brainomix's solution could help Op2Lysis reduce time and money in scaling up its solution.
 - The CSG will arrange contact between Brainomix and the interested meeting participants.