



ANNUAL REPORT 20**20**



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EDITORIAL

A look back at an atypical year

2020: Close to businesses and laboratories to withstand a health crisis

“ Since my arrival at Genopole in September of 2020, I've been able to appreciate the richness the campus offers in academics, innovation and entrepreneurship. 2020 was an exceptionally difficult year in both health and economic terms. Our role at Genopole was to assist the biocluster's businesses as much as possible and we are very happy that none of them were lost due to the health crisis. Quite the contrary, we experienced sustained activity with 300 million euros raised over the past year. Genopole pursued its mission of accompaniment and prospection with, as proof of its attractiveness, 13 new companies joining the biocluster in 2020.

Breakthroughs in research

The pandemic emphasized the need to continue developing research. Genopole enriched its technological equipment offer, notably as concerns bioproduction, in coherence with the regional and national policies deployed to support biodrug production in France. We had the pleasure of seeing the Magenta project labeled as an Industrial Integrator within the French government's Biopharmaceuticals Major Challenge program. That recognition was highly gratifying for us. Located at Genopole, Magenta associates two Inserm labs specialized in gene and cell therapies. It will serve as an enabler of exchange, open to researchers, start-ups and industrials, and destined to stimulate the emergence of innovative biotherapies.

Making headway across the globe

Despite the closed borders during the lockdowns, Genopole increased its international reach. The GEN.ERA project, piloted by Genopole and accredited by the European Commission, lets us create a veritable proximity with other European clusters with the aim of identifying promising markets in the United States and Asia for our start-ups working in the computational genomics sector. The European business and innovation network EBN also voted unanimously to certify Genopole as a European Business and Innovation Center (EU-BIC). We are the only biotechnologies cluster in the Île-de-France Region to have obtained this distinction.

What ambitions for 2021?

2021 obviously offers important perspectives, beginning with our move to the new Évry-Courcouronnes head office in the Life Center, the recent addition of which has increased the size of the biocluster. Our two ambitions for 2021 are to grow our international development particularly in Europe and to favor the industrialization of our accompanied businesses. These parallel perspectives are complementary, both internationally and locally, and continue to be in synergy with the collectivities and beneficial for the territory's economic activity. ”

Gilles Lasserre

Chief Executive of Genopole



Gilles Lasserre

Stéphane Beaudet

“ 2020 was a particularly dynamic year for Genopole. Of course, like everyone, we were hit by the COVID-19 crisis, but there was nonetheless an élan to be found at the biocluster. First, at the local level, we renewed all alliances with our collectivities and partners. Particularly, our bond with the South Île-de-France Medical Center was strengthened not only by an important collective mission to produce face shields for the hospital's workers, but also by Genopole's Call for Innovative Ideas to support and accompany innovative, practice-improving projects forwarded by the physicians, nurses and other staff members.

At the regional level, the PM'up Relaunch Industry and PM'up Covid projects enabled accompaniment for the Genopole companies Enalées, Algama and LPS Biosciences.

And that élan was visible at the national level as well. The COVID-19 crisis underlined the need to reestablish a form of national sovereignty, notably as concerns drug manufacturing and the transformation of research into industry in France. These will be primary objectives for Genopole in 2021 and beyond. Those goals led us to invest an effort in 2020 for the creation of an objectives contract for year 2021.

I of course have great hope for our biocluster. For its first twenty years, Genopole grew on the energy of research and laying foundations in a context surely less competitive than today's. Going forward, while continuing to carry out research and build local partnerships, Genopole will begin focusing more of its attention on industrialization. This move will vitalize local manufacturing and ensure that our biocluster remains a vital contributor to our territory, our region and our nation. ”

Stéphane Beaudet

President of Genopole



Key figures 2020

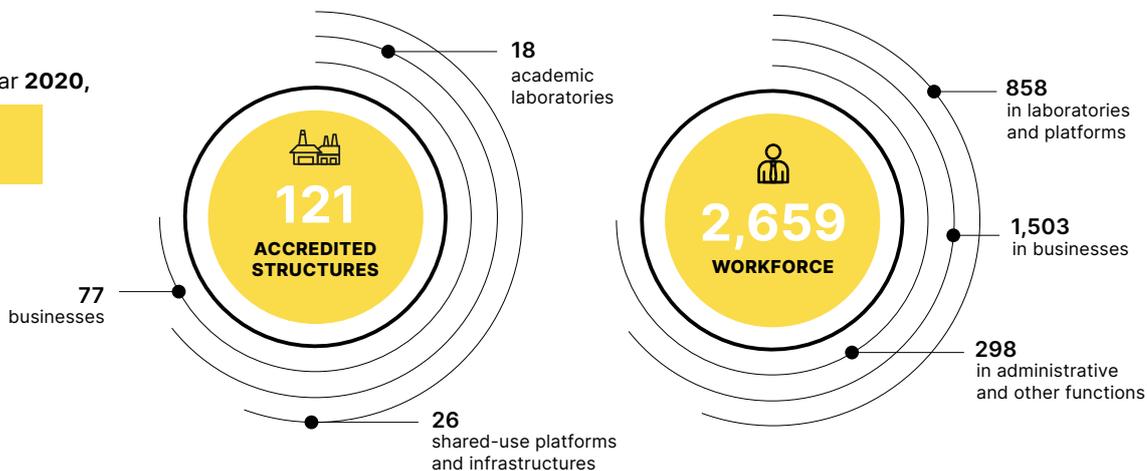
Since 1998,

the biocluster has accompanied **315 accredited structures:**



As of end-of-year 2020,

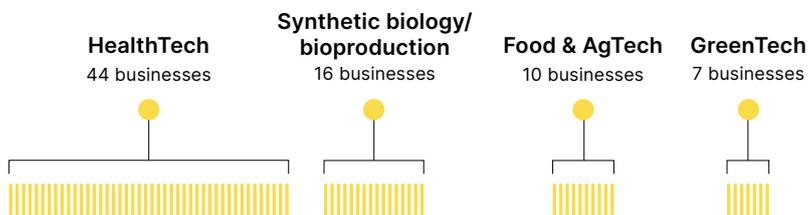
35% of them are still present:



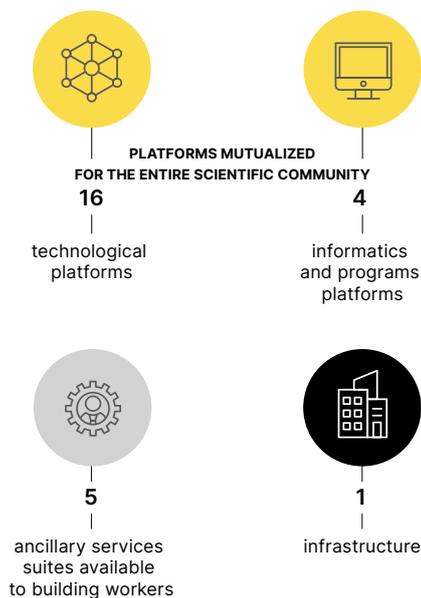
New structures welcomed in 2020



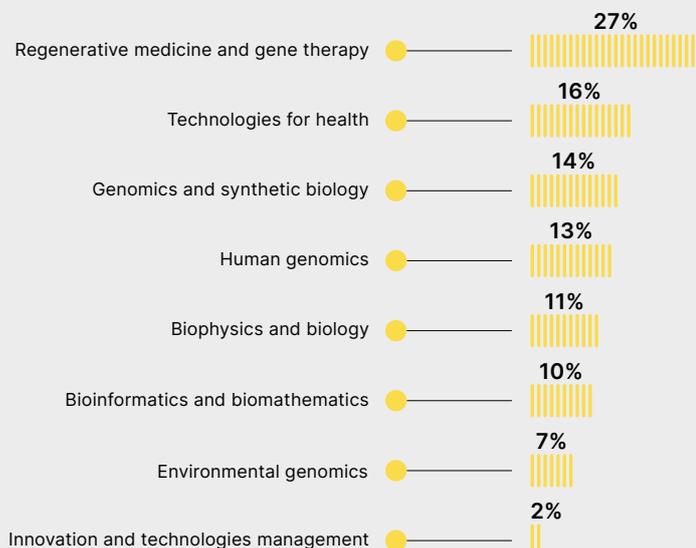
Business fields of activity



Infrastructure mutualization

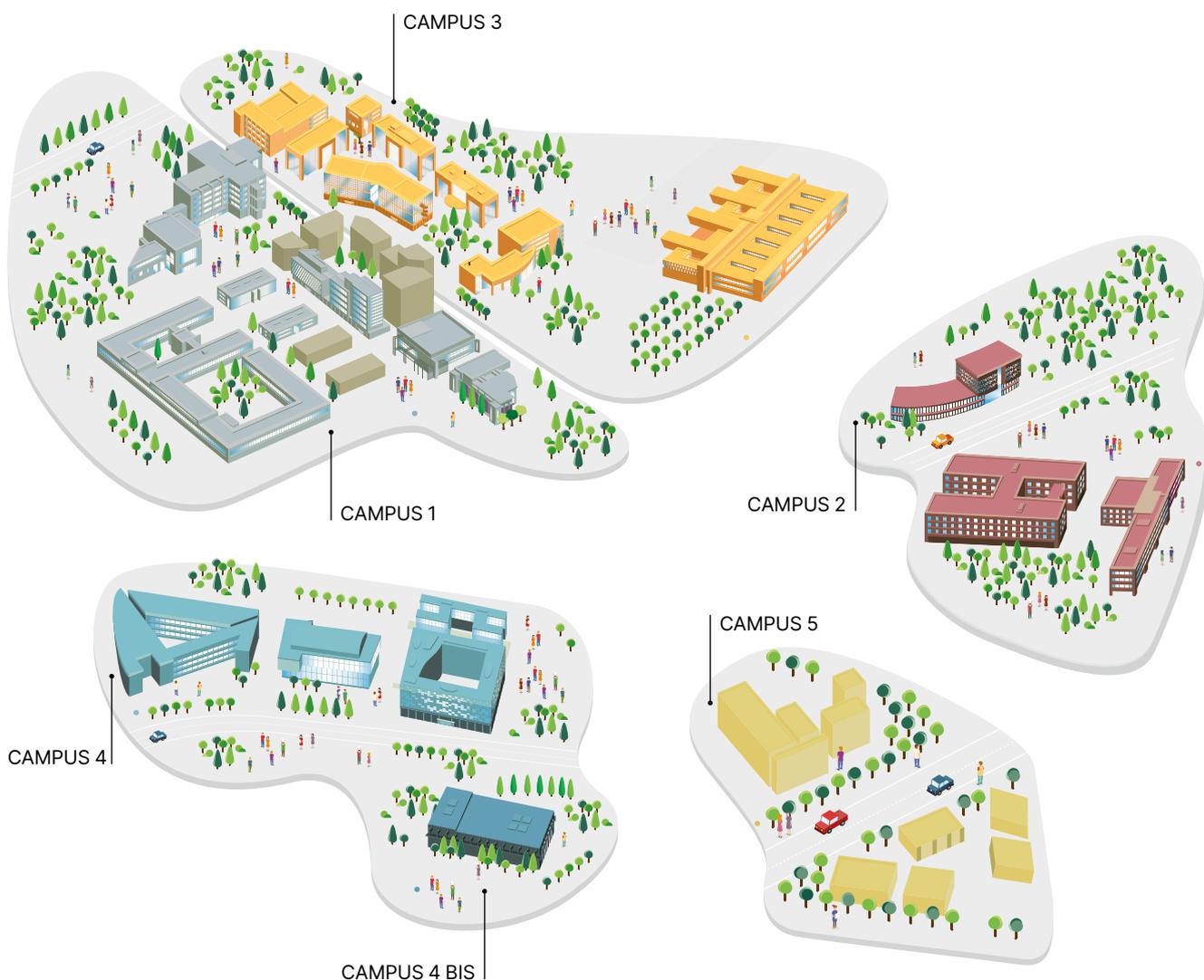


Laboratory fields of activity



The biocluster

The Genopole biocluster comprises more than 100,000 square meters dedicated to biotech businesses, academic research laboratories and shared use platforms & infrastructures. In partnership with SEM Genopole and the Essonne Chamber of Commerce and Industry (CCI), it proposes a work space & means offer tailored to the successive needs of biotech innovation—from the academic laboratory through to the functioning business—in not only the field of health but also those of the environment, agronomy and industry. The biocluster offers an agreeable environment and contributes greatly to the dynamization and valorization of the Essonne Department and its image.



SEM Genopole manages the office and lab real estate on Genopole campuses 1, 3 and 5.

The Essonne CCI provides start-ups with an incubator comprising offices and BSL-1 and 2 labs.

GIP Genopole manages a floor-space offer intended for technological platforms or public laboratories supervised by academic organizations such as the CEA, the CNRS, Inserm, the University of Évry, Inrae, etc.



Genopole online

The COVID-19 pandemic taught Genopole agility, with most activities and events becoming nearly 100% digital. Genopole was nonetheless able to maintain its relations with the biotech community thanks to its website and social networks. Despite the difficult situation, those tools made it possible for Genopole to continue developing the renown of the biocluster and that of its actors. Subscriptions to Genopole's various online presences is evolving constantly, +77% for example on LinkedIn.



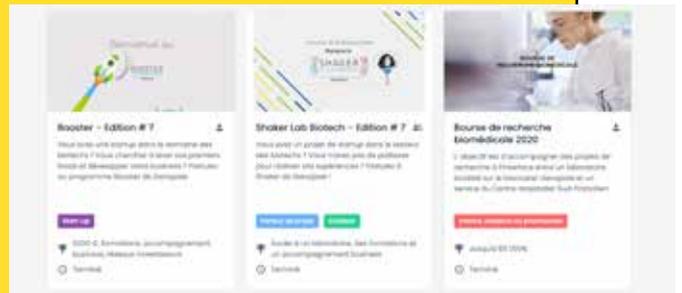
GENOPOLE LAUNCHES ITS NEW WEBSITE

Genopole's new website, with its uncluttered interface and intuitive navigation, was launched in October of 2020.

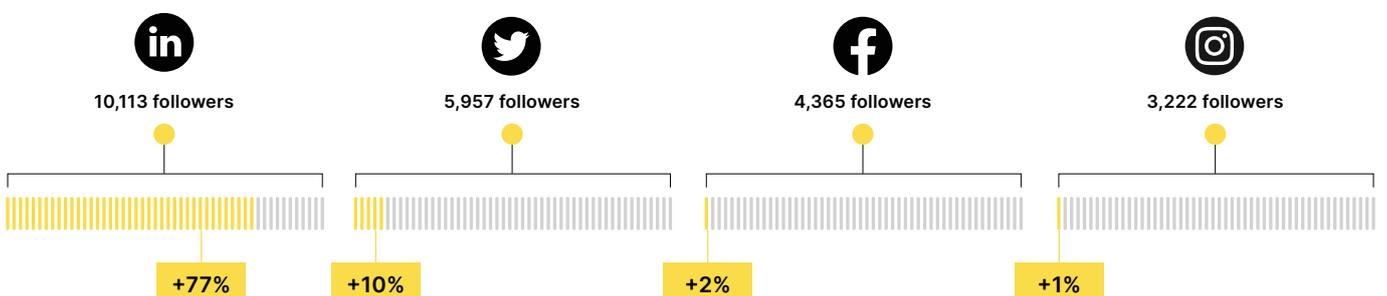
Researchers, postdocs, heads of start-ups and other visitors can discover not only what the biocluster has to offer and the know-how of its teams but also Genopole's calls for candidates addressed to researchers, project holders and entrepreneurs. The website's visitors can explore a map of Genopole's campuses, learn about its offers (aid for financing, development, internationalization, etc.) and teams, catch up on the latest news and upcoming events, and, of course, sound the biocluster's directory of businesses, labs and platforms.

AGORIZE: THE OPEN INNOVATION PLATFORM

To dematerialize its calls for proposals and keep them on schedule during the health crisis, Genopole created an online open innovation platform called Agorize. It promotes Genopole's range of calls as "challenges" and enables the online submission of dossiers. Agorize furthermore gives candidates the ability to interact with challenge organizers, and jury members the ability to examine submitted projects. Eight challenges (Shaker, Booster, postdoctoral grants, Call for Innovative Ideas, Partner4Biotech, biomedical research grant, Atige) were launched on Agorize in 2020, with no less than 124 submitted dossiers.



Our subscribers



Team

The GIP team, serving the biocluster

GIP (Groupement d'intérêt public, a form of public-private partnership for missions of public interest) Genopole comprises several departments each with recognized expertise in the accompaniment & development of laboratories, start-ups and businesses, and in the impulsion of innovative projects.

The GIP's teams seek to give Genopole's citizens the best possible conditions for fruitful partnerships.



The Genopole team accompanies researchers & business creators and brings life to the biocluster.



Gilles Lasserre
Chief Executive



Christophe Lanneau
Director
Research and Platforms
Department



Laurent Pépin
Director
Business & Partnership



Nahil Jacquemier
Director
Marketing &
Communication



Olivier Tomat
Director
Enterprises Department



Nathalie Loupias
Administrative Executive

Governance

The Groupement d'intérêt public (GIP, a form of public-private partnership for missions of public interest) Genopole continues to serve thanks to the unfailing support of its 12 members, five of which are fund providers. The GIP has policy and scientific strategy bodies to guide the assurance of its missions.

The biocluster receives stable support from a number of public entities (French State, Île-de-France Regional Council, etc.) who contribute significant funding for investments in and the functioning of shared-use technological platforms and the teams serving Genopole's labs and businesses.

GIP GENOPOLE GENERAL MEETING

The General Meeting is composed of representatives designated by each member institution. The General Meeting administers and makes all decisions concerning the GIP:

- adoption of the budget,
- annual program.

It also deliberates nominations to the Committee for Science, Innovation and Industry (CSII) and elects the president and vice-president.

COMMITTEE FOR SCIENCE, INNOVATION AND INDUSTRY (CSII)

The CSII is composed of qualified persons with particular competencies in Genopole's fields of activity. Its members are approved by the General Meeting. The role of the CSII is to provide the General Meeting with opinions and recommendations on the scientific and industrial orientations of GIP Genopole. A seat on the CSII is accorded *intuiti personae* and the members act in strict independence of their affiliations.



Our financers

Genopole's resources

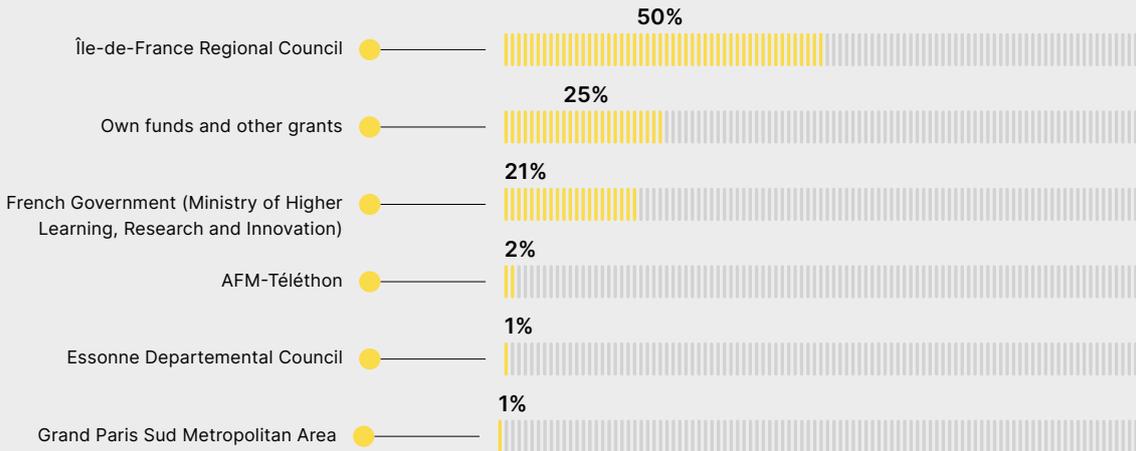
Genopole benefits from the unwavering support of its members. Public collectivities financed 73% of its 2020 budget of €13.5 million. The GIP's own resources represented 25% of the budget. The Île-de-France Administrative Region was Genopole's main financier, providing €6.7 million (50% of budget), followed by the

French State (Ministry of Higher Education, Research and Innovation).

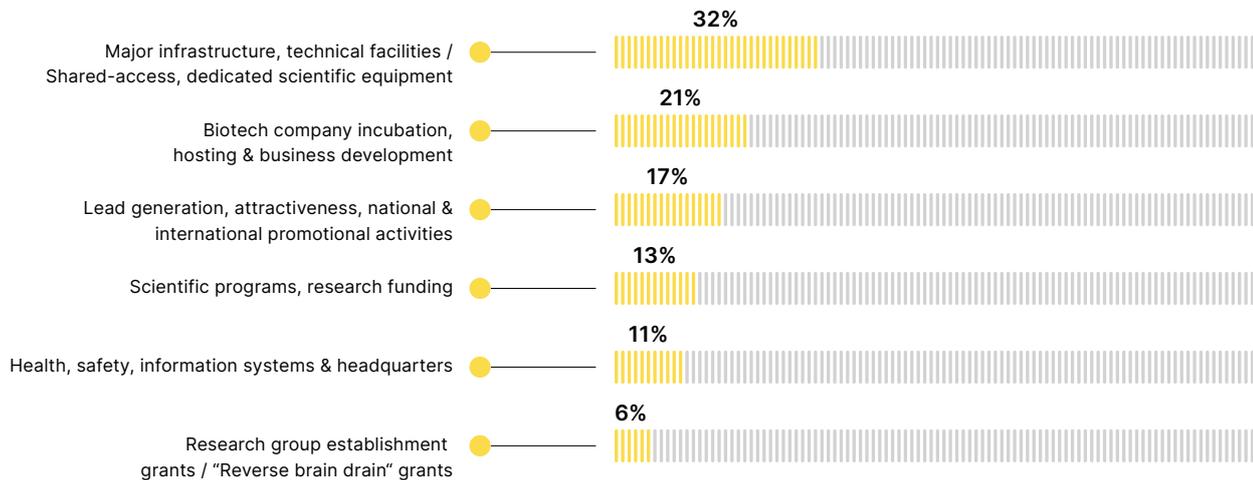
The funding of the biocluster's shared-use technological platform offer, its principal differentiation asset, represented the largest cost allocation within the 2020 budget.



Funding of the GIP Genopole



Expenditure (operations and investment) of the GIP Genopole





BUILDING SECTORS

From its roots in the development of innovative therapies, Genopole is expanding into the bioeconomy, a growing sector at the biocluster, and computational genomics, an emerging sector that is an enabler of biotech applications. These sectors are being adopted as a biocluster development orientation because they are in harmony with Genopole's mission, which is to support the entire innovation maturation chain, from targeted training to basic and applied research and on to industrial development.



The biotherapies sector at Genopole

Biotherapies

35
businesses

6
laboratories

12
platforms

Genopole: a major actor in innovative biotherapies

Genopole is one of the world's leading sites for the development of innovative therapies. Renowned for its scientific excellence, the Essonne biocluster is home to six laboratories in the field, two of which are pioneers in France: Genethon, a specialist in gene therapies for rare genetic diseases; and I-Stem, a specialist in the use of human pluripotent stem cells for pathological modeling, drug candidate screening and cell therapy development. Confirming the predicted arrival of the first clinical trial successes and market launches for innovative therapies, 2020 was remarkable for its advances, notably for gene therapies and again therein for Duchenne muscular dystrophy, the emblematic symbol of AFM-Téléthon's commitment since its inception 30 years ago.

Building a national biotherapeutics sector

Genopole unites numerous assets to accompany the biotherapeutics revolution and respond to its scientific, technological, economic and industrial challenges, as was underlined in a note on innovative biotherapies in Île-de-France published in 2020 by Institut Paris Region. Genopole's role in the construction of a national sector for health biotechnologies and innovative biotherapies was also illustrated by the recognition of a team of two biocluster actors as an Industrial Integrator within the Biopharmaceuticals category of the French Government's Major Challenges program.

The biocluster offers all the links in the chain: initial and continuing training, academic research laboratories, R&D and services companies, a technology transfer accelerator and production centers for clinical batches and medicines, all of which benefit from Genopole's teams, support services and technological equipment.

RESEARCH

A STEP CLOSER TO CONTROLLING RISKS IN GENE THERAPY

Immune responses against a viral vector carrying a gene therapy can create risks for that treatment, including the possibility of rendering it ineffective. Researchers from Genethon, in partnership with CNRS/Inserm and Spark Therapeutics teams, successfully inhibited immune responses to AAV vectors. Their results open new therapeutic vistas, for example, the ability to role out gene therapies to a larger population of patients or to enable their repeated administration over time.



COMPANIES

AN EARLY TEST FOR ALZHEIMER'S DISEASE

AgenT was chosen for Challenges Magazine's list of 100 start-ups to invest in 2020. A laureate of the second edition of Genopole's Booster program, AgenT is developing a blood test and an AI algorithm to detect Alzheimer's disease up to 20 years before any symptoms appear.





ÎLE DE FRANCE AT THE CUTTING-EDGE OF INNOVATIVE BIOTHERAPIES

Genopole contributed to a note published by Institut Paris Region to promote the biotech and gene & cell therapy know-how available in Île-de-France. The document maps the region's primary academic and industrial actors in next-generation biopharmaceuticals research. Genopole is a prominent feature in that landscape: with its dynamism throughout the value chain, from training to R&D and through to bioproduction, the biocluster is contributing to the construction of an innovative biotherapies sector in France.

RESEARCH 



A symbolic advance in the fight against myopathies

An important milestone was reached in 2020 by Genethon, a major actor in innovative biotherapies at Genopole, created 30 years ago by AFM-Téléthon.

Indeed the ANSM, the French national agency for medicines and health products safety, authorized Genethon's clinical trial on Duchenne muscular dystrophy (DMD), a rare genetic disease emblematic of AFM-Téléthon's mission. The trial, developed with Sarepta Therapeutics, will evaluate the tolerability and efficacy of an innovative gene therapy conceived by the laboratory. That therapy involves the delivery of a shortened but nonetheless functional version of the gene coding for dystrophin by an AAV vector. The dystrophin protein is essential to muscle function, but altered in DMD. The trial will be started in several French centers and expanded internationally thereafter.



WEBINAR: ADVANCES IN GENE THERAPY

On 8 October, in partnership with Choose Paris Region, the agency fostering the international attractiveness of the Île-de-France Administrative Region, Genopole held a webinar on gene therapies. Intended to attract the attention of North American companies and more specifically CROs et CDMOs in the gene therapy sector, the live webinar united about a hundred foreign participants with Genopole's bioproduction actors: ART-TG, Yposkesi, Texcell and WhiteLab Genomics.

RESEARCH  COMPANIES 

NEW SUCCESS FOR A GENETIC IMMUNODEFICIENCY DISORDER

Two of Genopole's major actors in biotherapies, the laboratory Genethon and the gene therapy manufacturing facility Yposkesi, contributed substantially to a new success in gene therapies for a severe immunodeficiency. They developed a lentiviral vector for a novel gene therapy aimed at providing lasting treatment for chronic granulomatous disease and produced drug batches for an international trial to test the medication. Of the nine patients who received this latter, seven experienced no infections and six were freed from treatments for disease complications.

RESEARCH 

CRISPR-CAS9 FOR BLOOD AND METABOLIC DISEASES

A team from the Integrare laboratory developed an innovative approach for the treatment of metabolic disorders and genetic blood diseases such as hemophilia. The approach calls upon the precision of the "molecular scissors" CRISPR-Cas9 to modify hematopoietic stem cells (which give rise to all blood cell types) in such a way as to produce therapeutic proteins in the erythroid lineage, i.e., that giving rise to red blood cells, by far the most numerous cells in blood. The proteins secreted by these cells are captured by the diseased cells wherein they are able to correct metabolic disorders.

RESEARCH  COMPANIES 

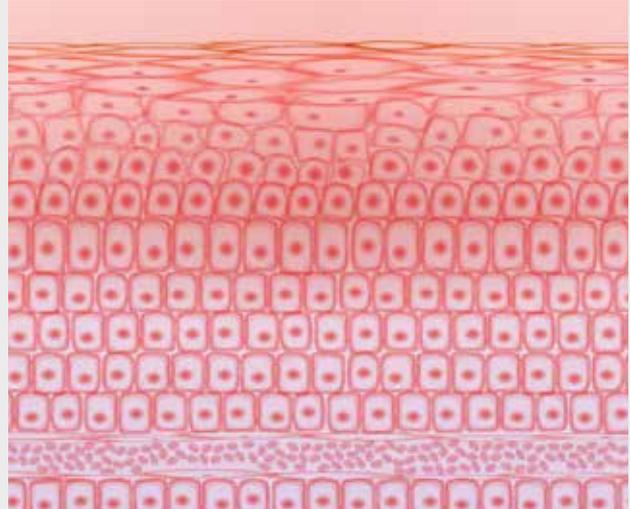
SYNERGIES FOR GENE THERAPY INDUSTRIALIZATION

By joining their forces, Genopole's companies and labs are rising to the difficult challenge of industrializing the production of advanced therapy medicinal products, first for clinical then for commercial batches. Here's an example among Genopole entities: PTG1+ is a polymer developed by Polytheragene to improve the bioproduction of gene therapy vectors. That polymer is an essential component in a production upscaling protocol developed by Yposkesi. And finally, Genethon will deploy Polytheragene's product and Yposkesi's protocol in clinical trials for gene therapies aimed at neuromuscular disorders and other rare diseases.

RESEARCH 

SKIN STEM CELLS AND RADIOSENSITIVITY

The researchers at the Genomics and Radiobiology of Keratinopoiesis Laboratory (LGRK) are specialists in human skin stem cells. They study factors that regulate stemness, with such objectives as improving the regenerative potential of grafts for cell therapies. They also characterize mechanisms that maintain or disturb genome stability. For example, in 2020, the LGRK team showed that small doses of radiation, like those used in medical imaging, although safe for healthy skin, can alter actively regenerating cells. The lab also identified a new molecular signature of radiosensitivity in patients who have severe adverse effects after radiation therapy.



COMPANIES 

AB Science pursuing its tests on masitinib in several disease settings

The Euronext-traded company AB Science and its laboratory at Genopole are carrying out several clinical trials to test their product masitinib in a range of pathologies including multiple sclerosis (MS). Results obtained in the two progressive forms of MS have been encouraging. *“Masitinib should improve the lives of patients with MS, with fewer relapses, slowed decline, and more time before needing a wheelchair, and perhaps not needing one at all,”* comments Laurent Gros, head of AB Science’s Drug Discovery Program at Genopole.

Partnerships with the United States

The tyrosine kinase inhibitor masitinib was also identified by researchers at the University of Chicago as the most powerful inhibitor of the principal protease of SARS-CoV-2, specifically the protease needed for viral replication in COVID-19. *“The American researchers contacted us to optimize their protocol. We’ve laid the foundation for a potential partnership concerning an antiviral indication for masitinib against COVID-19.”* For its part, AB Science is carrying out a clinical trial to test the ability of masitinib to control the excessive inflammation brought on by an overly-strong immune response in COVID-19.

The potential antiviral+anti-inflammatory action of masitinib inspired a €15 million loan from the European Investment Bank for the biotech to enable the pursuit of clinical development. Other trials have looked at the performance of masitinib in such settings as severe asthma, amyotrophic lateral sclerosis, pancreatic cancer and Alzheimer’s disease



RESEARCH 

Biodrugs: Magenta receives French industrial integrator label

The Magenta project, which unites the Genomic Therapy Technology Research Accelerator (ART-TG, Inserm) headed by Anne Galy with the CiTHERA cell therapy lab (Inserm, University of Évry, Paris-Saclay University) headed by Annelise Bennaceur-Griscelli, received the Industrial Integrator label within the Biopharmaceuticals category of the French Government’s Major Challenges program. Genopole contributed to equipment acquisition and provided an Atige grant to ART-TG so that it could develop its R&D programs in the best possible conditions.

The objective of the Biopharmaceuticals Major Challenge is to improve yields and costs for the production of biodrugs in France. The two labs are both located within Genopole’s Cytopolis building, which is dedicated to the development of innovative biotherapies and their rapid advancement to the patient’s bedside.

An intersection for industrials, start-ups and laboratories

Magenta is one of six major actors in the sector having received the Industrial Integrator label from the French State’s Innovation Council. They all share the mission of providing project holders with the competencies and tools needed for the production of antibodies, cell therapies and gene therapies & their vectors.

Magenta will also be an intersection at which industrials (pharmaceutical companies, equipment suppliers, etc.) seeking novel production technologies can meet with the innovative companies and academic laboratories forwarding such an offer. It will furthermore provide a fruitful environment for the development of start-ups born of the research promoted within the Integrators.





The bioeconomy sector at Genopole

The bioeconomy

25
businesses

3
platforms

Committing to the bioeconomy, a seedbed for sustainable innovation

Genopole contributes actively to the development of the bioeconomy sector. This latter is of primordial importance for France and a seedbed of innovations aimed at greening industrial production for such fields as healthcare (biodrugs) energy (biofuels), foods (synthetic flavorings), materials (bioplastics) and many more.

No less than 25 Genopole-accredited companies are part of this sector wherein the genetic and physiological properties of life (plants, yeasts, bacteria, etc.) are harnessed to produce molecules of interest for industry.

Because this sector strategy only has sense at a macro level, Genopole works in partnership with other national bioeconomy actors such as Toulouse White Biotechnology, which Genopole visited in February, and the Center for Biotechnology and Bioeconomy (CEBB; AgroParisTech/CentraleSupélec/URCA), located at the Pomacle-Bazancourt (Marne) agro-industry site. In January, CEBB's research teams were invited to discover the expertise and equipment available at Genoscope (CEA) and the Genopole company Abolis, a specialist in synthetic biology. A seminar comprising thematic workshops on biomass valorization and "omics" approaches was held in parallel, providing 30 researchers from the two entities with an opportunity to meet and exchange ideas.

Fermentors for pilot-scale projects

Beyond helping to create scientific partnerships, supporting the bioeconomy sector also implies investing in state of the art technologies and mutualizing them for the involved labs and businesses. That is one of Genopole's roles: create, update and strengthen platforms for the R&D needs of Genopole entities. For example, **the Fermentor Bioproduction Platform** located within the incubator was recently enriched with four additional mini-fermentors, thus enabling the pilot-scale (20-liter) bioproduction of compounds of interest by bacteria or yeasts.

The ancillary services suite at the incubator was also made better for bioeconomy companies by the addition of new tools, notably an epifluorescence video microscope for prokaryote studies. Further downstream, the Évry campus's mass spectrometry platform, a role of which is to verify fermentation-produced compounds, was enlarged with a Q-TOF mass spectrometer and a surface plasmon resonance instrument coupled with a Maldi-TOF/TOF mass spectrometer.

An increasing number of companies in the sector see Genopole as a potential home. For example, nextProtein, a Franco-Tunisian manufacturer of insect proteins for fish farming, chose Genopole's incubator in September 2020.

The objective for the years to come is to anchor Genopole among the top-rank public actors for the bioeconomy in France and make its campuses attractive sites for the sector's researchers and industrials.

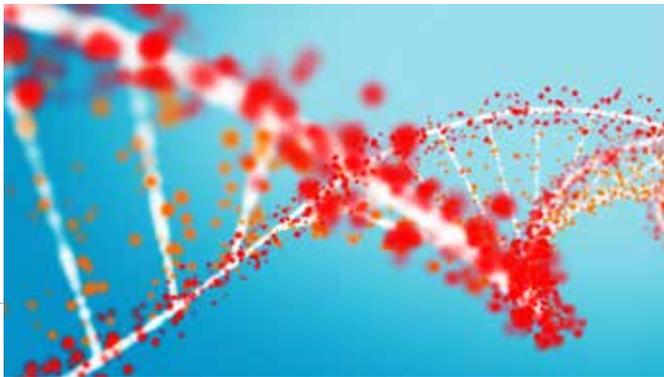


ENVIRONMENTAL INNOVATION FLASH

To garner media visibility for Genopole's commitment to the bioeconomy, an onsite press visit was held on 7 October under the banner "Biotech Innovations for the environment." The event program, developed with the Environmental Journalists Association (AJE) put the spotlight on five bioeconomy companies: Global Bioenergies, Altar, Glowee, Evaldépole and Cearitis. The companies opened their labs for visits and responded to the journalists' questions. After a presentation on Genopole's strategy by Gilles Lasserre, the program continued with a visit to the Open Lab, a shared-use space within the incubator (Essonne CCI) developed by Genopole to welcome young start-ups.



COMPANIES



ALGENTECH, A RARE EUROPEAN ACTOR IN GENOME EDITING

The genome editing technology CRISPR-Cas9 developed by Emmanuelle Charpentier (France) and Jennifer Doudna (USA) earned them the 2020 Nobel Prize in Chemistry. Algentech, a company created at Genopole in 2009, is one of a handful of European companies in the genome editing field. First in Europe then in the United States, Algentech has been granted patents for its innovative technology able to increase the efficacy of gene editing in eukaryotes whatever the molecular scissors, including CRISPR-Cas9.

COMPANIES

Ÿnsect extends its collection of records

What a start for Ÿnsect, a company emblematic of FrenchTech that just won't stop collecting records! Launched in the Genopole incubator, the start-up quickly needed much more room to establish its R&D center, which has become the world's largest insect farming and transformation facility. Ÿnsect had a rewarding year with its insect-based biological solutions for chemical fertilizers, fish farming and pet nutrition. Its technology involving mealworm beetles reared on cereal by-products and transformed into nutriment is protected by close to 30 patents, which is no less than 40% of the total patent portfolio of the ten largest insect farming companies.

The company has the total confidence of its international investors. Indeed, Ÿnsect raised €315 million from them, and in so doing, carried out the most successful fund-raising campaign ever by a non-American agriculture company. Ÿnsect also ranked third among the ten French companies having raised more than €100 million in 2020. This new arrival of capital lifts the company's total investments since its creation to €350 million—more than the entirety of funds raised by insect-sector companies worldwide! Among the new investors are several American entities, including Upfront Ventures, Los Angeles' largest venture capital firm, and Foot Print Coalition, an investment group founded by

Actor Robert Downey Jr, who brought undreamed of attention to the company when he held up a jar of its insect powder on a major American television late show. The video went around the world. The capital increase will finance the construction, close to Amiens, of the world's largest vertical insect farm providing a yearly ingredient production capacity of 100,000 metric tons.

The company's insect-derived fertilizer reaches the market

In addition to being named "Revelation of the Year" in the 2020 BFM Awards in November, Ÿnsect's fertilizer, ŸnFrass, garnered market authorization from the French Agency for Food, Environmental and Occupational Health & safety (ANSES). The start-up thus became the first worldwide to obtain commercial homologation for a natural, insect-derived fertilizer. ŸnFrass granules can be used in all types of plant culturing: market farming, arboriculture, viticulture, lawn grasses, ornamental flowers, intensive corn, colza & wheat farming, etc. In a study performed on potted barley, the mealworm beetle waste ("frass") proved as effective as mineral fertilizers, and, when mixed with them, stimulated soil microbial activity. Ÿnsect has given exclusive French agriculture market commercialization rights for its organic fertilizer to the company Angibaud. Other contracts have been signed with Torres, a Spanish wine producer, and the Compo Group for the gardening market.



COMPANIES

EVALDÉPOL CONCEIVES A PROGRAM FOR INDUSTRIAL GROUNDS REMEDIATION

Evaldépól has conceived a novel computer program, called Kiwi-Maps, for the remediation of soils affected by industrial pollution. Already a Booster laureate, Evaldépól has also received a Genopole research grant for the development of this artificial intelligence tool. The program assesses soil data to identify the nature and the penetration depth of pollutants, and thereafter determines a tailored remedial process. Kiwi-Maps represents a solution for industrial remediation operations, which are an element of the French Government's economic stimulus plan.

COMPANIES

GLOBAL BIOENERGIES TURNS ITS ATTENTION TO COSMETICS

Created and located at Genopole, the Euronext-Growth-traded company Global Bioenergies was first focused on renewably-resourced isobutylene production for conversion to biofuels, bioplastics, plexiglasses and elastomers. In 2020, the company's center of gravity shifted to cosmetics. As a notable first step, on 24 November, Global Bioenergies registered its first ingredient with the European Union's Registration, Evaluation and Authorization of Chemicals (REACH) regulatory system.

COMPANIES

Abolis associates with Bel and Lesaffre for more natural nutrition

The biocluster company Abolis Biotechnologies, a specialist in synthetic biology, has joined forces with the industrial groups Bel and Lesaffre, and the Toulouse Biotechnology Institute (INSA Toulouse/CNRS/Inrae) for the project MetaPath. The objective of this latter is to increase knowledge on the function of microbial ecosystems used in the food & agriculture industry.

To better respond to customer expectations, that industry is seeking to reduce the use of taste, texture or conservation enhancers in foods. Via their metabolic functions, microorganisms (yeasts, bacteria, etc.) can, in some cases, provide natural equivalents to these additives. However, before any use of these organisms for large-scale industrial processes, a minutiose understanding of the biological mechanisms and biochemical reactions occurring during fermentation must be acquired.

MetaPath, laureate of the ninth "Competitiveness Structuring Projects" call of the Investments for the Future program (PIA), is aimed at just that.

A path for the synthesis of food flavors

Particularly, MetaPath seeks to develop a program for the *in silico* modeling of the biochemical reactions of microbial consortia. A first version of the program's central algorithm was developed by Abolis in partnership with Bel, and submitted to a series of blind tests enabling the identification of the synthesis pathways of 41 of 44 target flavors.

MetaPath benefits from a €9.4 million budget, €5 million of which is provided by the PIA piloted by the French Secretary General for Investment and operated by Bpifrance.



COMPANIES

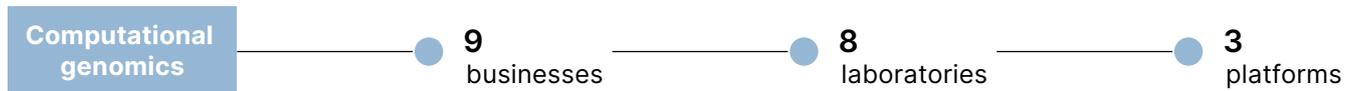
GLOWEE INVENTS AN ENLIGHTENING GAME ON BIOLUMINESCENCE

Currently growing in the incubator, Glowee develops bioluminescence systems as alternatives to conventional electric lighting.

Recently the start-up developed an educational game on bioluminescence called Biolumia, for which a crowdfunding campaign drew 250 contributions. Biolumia is aimed at a wide audience of players who embark on a journey to the bottom of the sea to encounter an impressive number of marine organisms able to produce their own light.



The computational genomics sector at Genopole



Computational genomics: a vital element for biotechnological growth

Genomics has seen significant developments over the last few years. Applications derived from it are to be found everywhere: in basic sciences to provide fundamental information on the mechanisms of life, in medicine to improve diagnoses and define personalized therapies, in industry to enable bioprocesses for production, in agronomy to better adapt cultures, and in environmental sciences to explore ecosystems.

Wherever it finds itself, genomics generates enormous amounts of data, which need to be stored, encrypted, analyzed and cross-analyzed. This has created a need for novel methodologies in mathematics, informatics, modeling, simulation, automation and data sciences, all of which must be synergistic with biology disciplines. Therein lies the purpose of computational genomics.

This research sector is expanding rapidly, breaking down walls between biology, mathematics and informatics, and giving birth to entirely new concepts. Computational genomics is a factory where complex, multiform data are transformed into useful tools that improve healthcare, industrial production, farming practices and much more.

Major actors at Genopole

On a foundation of solid scientific and technological competencies, a complete computational genomics sector, from basic research to finalized applications, is being built at Genopole, and more largely in Essonne and in France. At the biocluster, the sector benefits from academic bioinformatics (IBISC) and biomathematics (LaMME) labs, multidisciplinary teams (Genoscope, CNRGH, GenHotel), shared use computational platforms (EvryRNA, MicroScope), and finally a plethora of businesses developing functional tools for life sciences (Whitelab Genomics, Genosplice Technology, Traaser, IntegraGen, etc.).

An indispensable strategic axis

Consolidating the computational genomics sector is a major objective for the biocluster. That effort is vital for ensuring that biotechs—Genopole's *raison d'être*—are able to meet their potential and bring solutions to the full gamut of industrial needs. The issue is nothing less than protecting national independence in the management of genomics data and ensuring the development of innovations at Genopole and in France.





COMPANIES

INTEGRAGEN BRINGS A COMPUTERIZED THERAPEUTIC GUIDE TO ONCOLOGISTS

Located at Genopole, IntegraGen is a specialist in genomics analyses and molecular diagnostics in oncology and autism. The company has developed a cloud-based bioinformatics tool, called Mercury, for the interpretation of tumor sequencing data. Mercury is used by clinicians as a guide for adapting therapies to the particular genetic profile of a patient. In 2020, IntegraGen announced a contract for the use of Mercury by a major American cancer center. In that same year, IntegraGen also obtained CE marking for Mercury, which will strengthen the Genopole company's ability to market its application in the European Union.



COMPANIES

GENOSPlice: A PARTNER FOR SCIENTIFIC DISCOVERY

Genosplice Technology provides major companies and institutions with expertise in the bioinformatic analysis of genomics data. Notably, in 2020, the Genopole company partnered with the Imagine Institute to reveal the key role of an enzyme in the embryonic development of the neural crest, and with Institut Curie to illustrate a mechanism involved in the control of mammary gland development.



RESEARCH

TOBACCO: DANGEROUS FOR BABIES EVEN BEFORE CONCEPTION?

In an unprecedented work, researchers from the National Center of Human Genomics Research's (CNRGH/CEA) Epigenetics and Environment Laboratory showed that even when the habit is stopped before pregnancy, smoking nonetheless affects the placenta. Their analysis of placentas from 568 women revealed persistent alterations to DNA methylation. Considering the vital role of the placenta in fetal development, those epigenetic alterations could affect the pregnancy and the infant's health.



RESEARCH

BIOINFORMATICS FOR ENVIRONMENTAL GENOMICS

A team from Genoscope's Genomics Metabolics Unit has developed a bioinformatics method able to identify genes from a same species or genes from biologically associated species within complex multi-organism samples. Deploying that methodology in data derived from samples taken during the Tara Oceans expeditions, samples comprising vast numbers of planktonic organisms, the researchers discovered never-before-described organisms and ecological functions. For example, they identified microalgae that produce a key enzyme in the sulfur cycle as well as a symbiotic relationship between a nitrogen-fixing cyanobacterium and a unicellular alga.



RESEARCH

STUDY OF DISEASES: FROM STATIC VISION TO DYNAMIC SIMULATION

GenHotel at Genopole and the National Institute for Digital Sciences and Technologies (Inria) have developed CaSQ, a computer program for transforming static representations of biological systems into dynamic models. CaSQ is particularly pertinent for the study of diseases, as it gives researchers the ability to test virtually the effects of disturbances (immune response, infection proliferation, etc.) or medications on them. It was employed notably for the large, international, COVID-19 Disease Map project.



RESEARCH

DIATABASE: FIRST-EVER DATABASE ON DIABETES IN FRANCE

In September of 2020, the Study and Research Center for the Intensification of Diabetes Treatment (CERITD) provided the initial test data for Diatabase. As France's first database on diabetes, Diatabase will aggregate anonymized data from hospitals, private practices, research centers and patients themselves via connected devices. The project's objectives are to increase knowledge on diabetes and improve treatments & quality of life for the estimated 3.7 million people living with diabetes in France. Diatabase is financed by the Investments for the Future program as part of the Digital Major Challenge.





SPARKING INNOVATION

Genopole is a starting link in the biotech innovation value chain. Its mission is to detect innovation in its embryonic stage or even spark it into existence. Although necessarily adapted to the 2020 health crisis, Genopole's assortment of structures and actions remained available to favor the dawn of innovative projects and novel scientific topics in biotech: health, the environment, food & agriculture, bioinformatics the bioeconomy and more. Genopole's objectives are to attract high-potential projects to the biocluster, be they in the hands of university or PhD students, engineers or researchers, French or foreign; and to optimize their development through human, scientific and technological accompaniment.



Shaker: the all-in-one Science & Business program

The Shaker program is a catalyst for innovative ideas. Its purpose is to identify inventive spirits at the starting line and give them time and means to complete their research and learn entrepreneurship, with, to boot, a teamwork spirit to make it a fun and sharing experience.

The Shaker targets two outcomes: to establish scientifically the viability of the innovation and to train the project holder in business creation.

- Respecting all COVID-19 prevention measures, the freely-available, equipped, shared-use Biotech Lab remained open in 2020. There, the Shaker laureates could continue their experiments, benefitting from a budget for buying consumables or accessing the campuses' state of the art platforms.
- Collective training in intellectual property, business models, financing, hiring, etc., was given online in 2020, with additional personalized accompaniment provided by Genopole's project managers.

The endgame is pragmatic: turn researchers into entrepreneurs. Since its creation in late 2017, the Shaker has enabled 36 innovative projects (11 underway currently).

Of the 25 Shaker graduates, 16 (64%) have consolidated as businesses and of those, 11 (69%) have continued with Genopole accompaniment within the Booster program.

Of course, a new project has to be a known project. On 9 January, Genopole and its partners (Bpifrance, Essonne CCI, Peips-University of Evry, Satt Paris Saclay, iPAZ, Pôle emploi, Réseau Entreprendre, etc.) held an open house event, at which five laureates within the sixth Shaker edition had an opportunity to present their projects to an audience of about 100 people.

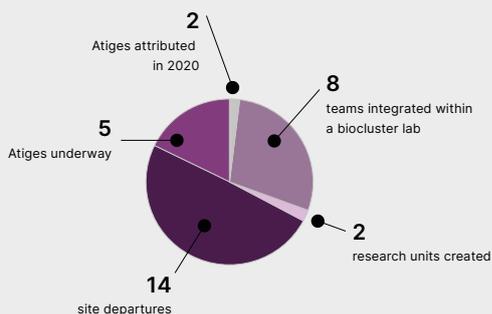
Later, on 1 October 2020, a 100% online Welcome Session offered a podium to eight laureates of the seventh Shaker edition to make them part of the Genopole community right away.



RESEARCH

ATIGE: BRINGING NEW SCIENTIFIC TEAMS TO LIFE

Two Genopole Thematic Actions Incentive (Atige) grants were distributed in 2020. Thus, Genopole now counts 31 researchers who have created a team and opened new domains of research thanks to the €250,000 three-year funding provided by the Atige program. The first 2020 Atige went to Marie Dewannieux who joins ART-TG. There, she will advance gene therapy vector technologies by addressing immune factors that currently limit their efficacy. The second 2020 Atige recipient, Olivier Biondi, will join the Exercise Biology for Performance and Health Laboratory (LBEPS) where, in partnership with Genethon, he will explore the effects of adapted physical exercise on calpainopathy with the aim of developing new therapeutic strategies for this frequent limb-girdle muscular dystrophy.



RESEARCH

LAUNCH OF THE BIOMEDICAL RESEARCH GRANT

In 2020, Genopole deployed a new program to provide a year of Masters 2 or scientific thesis funding in the setting of medicine or pharmacology. Laureates must present a project that will act as an interface between a biocluster lab and a South Île-de-France Medical Center department.

Dr. Dardari, who works at the center's diabetology department, is the program's first grant recipient. As part of his third-year PhD work at the University of Évry and under the direction of LBEPS, he will seek to identify causative factors for Charcot neuroarthropathy, a disorder that silently destroys foot bone structure in patients with diabetes.



Call for innovative ideas: Genopole and the CHSF join forces to improve patient care

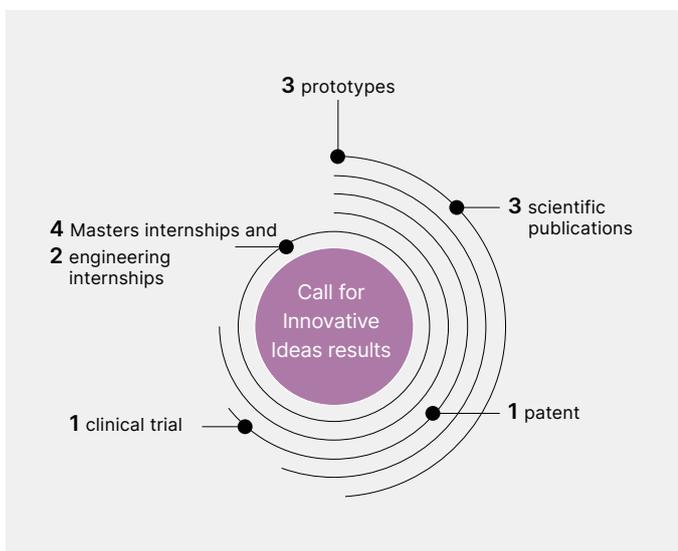


The purpose of Genopole's Call for Innovative Ideas is to give the personnel at the South Île-de-France Medical Center the means to innovate within their medical practices. Year 2020 saw the third edition of the call, supported by the Essonne Administrative Department and Grand Paris Sud. The winning candidates received financial assistance, Genopole accompaniment and privileged access to the Genopole ecosystem to test the feasibility of their ideas

with the support of a biocluster scientific or technological partner and evolve them into R&D projects. Including this third edition, the Calls for Innovative Ideas have led to 11 projects for clinically useful innovations, six of which are currently taking form.

Gilles Lasserre, Chief Executive of Genopole *"The Call for Innovative Ideas is a cornerstone of the partnership we share with the South Île-de-France Medical Center for close to ten years now."*

The project's topics include, among others, connected patient follow-up tools, automated imaging analyses, telemedicine, therapeutic education, cancer screening and virtual-reality medical training.





For Genopole, detecting and supporting nascent innovation requires strong connections with the territory's research and higher learning actors.

RESEARCH **GOLD AND MORE AT THE 2020 iGEM COMPETITION**

The Genopole Évry Paris-Saclay student team earned a gold medal and four nominations at the 2020 international iGEM Competition. With their project "Rosewood," the team brought a novel synthetic biology application to the competition, specifically a tool to combat the bane that is the illegal trafficking of products derived from protected wood species. Indeed, the Évry team is developing a biosensor for the genetic identification of rosewood, which is currently the most trafficked natural product in the world. Their project received financial support from several partners including Genopole and the University of Évry.

**GENOPOLE AT THE HEART OF ÉVRY-SÉNART SCIENCES AND INNOVATION**

Genopole is a member of Évry-Sénart Sciences and Innovation, an association that federates actors in research and higher education within the Grand Paris Sud Urban Area. Life sciences, engineering, digital sciences, social sciences and medical sciences are all represented in the association. Genopole participates actively in this interdisciplinary hub able to energize collaborative projects for research and innovation.

**NEW YEAR'S CONFERENCE FOR GENOPOLE AND ITS PARTNERS**

Genopole and its partners (University of Évry, Ensiie, Télécom SudParis, Institut Mines-Télécom Business School) met to discuss their wishes for the new year at Ensiie on 28 January. A roundtable with the directors of the five entities highlighted common projects (creation of the Computational Genomics Institute, iGEM competition, cluster C19, support to businesses, etc.) in the presence of Essonne Prefect Jean-Benoît Albertini, Genopole President and Évry-Courcouronnes Mayor Stéphane Beudet, Grand Paris Sud Urban Area President Michel Bisson and an audience of about 150.

**ÉVRY-COURCOURONNES, A UNESCO LEARNING CITY**

On 19 September, Genopole CEO Gilles Lasserre participated in a roundtable to discuss and celebrate Évry-Courcouronnes' recognition as a UNESCO Learning City. Worldwide, the UNESCO label has been granted to 254 cities, of which four are in France. Because the sciences were chosen as the central theme by Évry-Courcouronnes, Genopole and its mission of spreading scientific culture are naturally a part of the Learning City movement. The dynamic created by the city's scientific, cultural, associative and educational actors will give a new dimension to events and actions for the general public.

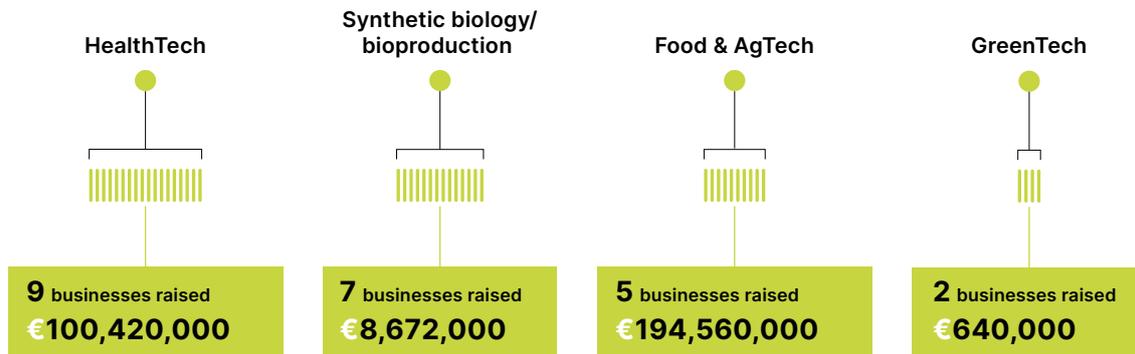


DEVELOPING INNOVATION

Moving discovery to development, the Genopole ecosystem ensures fluidity between research, clinical trials, valorization and industrial development. To carry out its mission, Genopole pilots a program of actions and services comprising strong support to academic research teams, constant enrichment of the shared-use technological platforms, a Booster program to consolidate the growth of start-ups, a team of project managers to provide entrepreneurial guidance, the organization of events to share information and exchange ideas, and much more. In a tumultuous year, Genopole adapted its accompaniment strategy and reaffirmed its role as a catalyzer. New companies set up shop at the biocluster, which was able to count on the Île-de-France Administrative Region to favor its industrialization.



23 businesses raised €304 million



COMPANIES

Accompaniment adapted to the health crisis

Informing, supporting and making partnerships possible are at the heart of Genopole's missions. The biocluster's business accompaniment proved particularly vital in 2020 to help companies rapidly reorganize in response to the COVID-19 pandemic. Despite the difficulties, Genopole's businesses remained in activity.

A total of €304 million in private funding was raised by 23 of them and grants from Bpifrance worth €7.5 million benefited 17. And, even with the crisis, the biocluster remained as attractive as ever, drawing 13 new companies to it in 2020.

Informing and connecting

Specific accompaniment was quickly deployed to provide urgent counselling and information to the companies. Switched to an online format, the Workshops became practical and useful "information booths" for Genopole's citizens. A webinar held 1 April with a social

and fiscal expertise group drew 20 biocluster businesses looking to better understand part-time and remote work regulations, prevention practices for onsite personnel and other crisis-related issues. On 5 May, the Genopole companies Synhelix, Texcell and Xentech stepped up to help with an online meeting joined by 28 site businesses to hear their experiences on the resumption of lab activities post-lockdown. The day after, a roundtable was held with Merck, Biohexis, Hamamatsu and Novoptim on good practices for maintaining commercial relationships and managing teams while working remotely among other subjects.

Other webinars were held on post-confinement human resources, accounting and regulatory issues. This exceptional year did nonetheless leave room for commercial activities. In October, a Partner4Biotech videoconference put 21 Genopole entrepreneurs in contact with the Innovation & Research deciders from Solvay, who showed interested in long-term partnerships with several of them. Genopole's businesses managed to surmount the health crisis, continue their R&D activities and even achieve turnover for some of them, including for exports.





COMPANIES 

Upping industrialization for Île-de-France

In 2020, to support the transfer of innovation to industry and empower employment in Île-de-France, the administrative region, Genopole's main financier, launched a call for proposals called "PM'up Relaunch Industry," for which three Genopole-accredited biotechs were selected: Enalees, LPS BioSciences and Algama. They will obtain grants of €400,000, €210,000 and €600,000 respectively for their industrialization projects in Île-de-France.

Genopole Chief Executive Gilles Lasserre

"The support from PM'up Relaunch Industry is a veritable springboard for the growth of these businesses. (...) In conformity with our mission for the economic development and attractiveness of the territory, we place the issue of pre-industrialization, a source for job creation, at the heart of our strategy."

- **Enalees**, a company commercializing a PCR diagnostic test for human COVID-19, will be opening a manufacturing facility for its tests (COVID-19 and infectious diseases in animals).

Enalees CEO Laurent Thiery

"Our manufacturing facility will be located at Genopole so that we can continue to benefit from the biocluster's infrastructures and support."

- **LPS Biosciences**, a specialist in the use of bacterial glycolipids for the production of innovative vaccines, is forwarding an industrialization project for COVID-19 vaccine components.

LPS BioSciences Founder Dr. Martine Caroff

"This financing will allow us to increase volumes and hire new employees to enlarge our manufacturing and marketing teams."

- Algama develops and manufactures dietary products derived from microalgae and intends to create a production line in Île-de-France.

Algama Cofounder and CEO Alwyn Severien

"The PM'up grant, in complementarity with financing from international investment funds, sounds the starting gun for our production facility, an unprecedented project in Île-de-France."



The Booster: from innovation to the creation of value

As the logical follow-up to the Shaker, the Booster program welcomes, among others, innovations that have bloomed in the Biotech Lab and become high-potential start-ups. Indeed, of the 33 companies selected for the Booster since its creation, 10 came from the Shaker. The others, created in the region, in France or elsewhere in the world, find in the Booster and the Genopole ecosystem human resources, the OpenLab, a coworking space and the technological tools they need to pursue their R&D.

Intended specifically for biotechs working in Genopole's strategic sectors, the Booster synergizes with the biocluster's foundation mission; in so doing, it provides a differentiating added value compared to other start-up accompaniment programs.

In 2020, the sixth and seventh Booster editions brought aboard nine start-ups with great development potential. The program's objective is to conduct the start-ups toward their first successful fund-raising campaign. The one-year Booster program puts entrepreneurs in contact with biotech creation experts. High level training (business model strategies, market access, fund raising, marketing, communications/pitches, contractual/regulatory issues), provided online for the five laureates of the seventh edition, enables the adjustment of business strategies, market positioning, company communications, etc. Other strengths of the Booster program include the long-

term, custom-tailored accompaniment provided by Genopole project managers, the mutual aid among the laureates and the opportunity to establish relationships with Genopole's network of investors.

Since its creation, 16 of the 33 Booster-accompanied start-ups have raised €10.4 million, 24 have benefitted from €7.5 million in public aid and loans, and 109 jobs have been created. Those numbers validate the Booster's acceleration strategy and its ability to accompany start-ups in the economic valorization of their innovations.

2020: 9 start-ups
accompanied in the Booster

Adlin Science
Cell Environment
Core Biogenesis
Lamark Biotech
Proteinea

The Shaker graduates

Cearitis
Ecoa
Fabmid
Greenwell

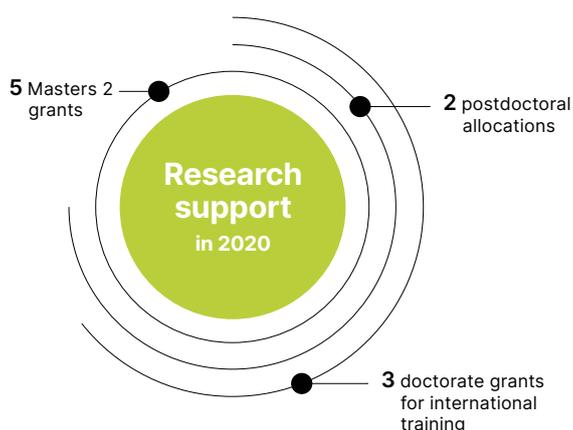




Three programs to support research

Genopole launches several calls for candidates every year to strengthen the biocluster's laboratories and businesses in both human resources and scientific competencies.

- **The postdoctoral allocations** provide two years of salary for young researchers so that they can carry out research projects within a biocluster lab or business. Year 2020 saw the 91st and 92nd allocation recipients, the first of whom is working at the IBISC laboratory on the emerging field of network informatics and its use in the study of diseases, and the second at SABNP on gene splicing, a biological process that is vital for gene expression but also, when dysfunctional, a potential cause of genetic diseases and cancers. All of the postdoctoral allocation beneficiaries in the program's 20-year history went on to find permanent positions in public or private research.
- **The Masters 2 grants** are aimed at supporting student training in research and helping labs deploy new projects by funding six months of internship compensation. Five were awarded in 2020 in the fields of synthetic biology, genomics, bioinformatics in medical imaging and structural biology.
- Genopole also financed **high-level international training for three PhD students** to enable their acquisition of interdisciplinary competencies (chemistry/biology/bioinformatics in 2020) that are both beneficial for their doctorate research and transferable to their teams.





26 technological platforms to support research and innovation

The biocluster's shared-use, state of the art technological equipment and the competencies that go with them—called “platforms” in Genopole parlance—are a major development lever for its laboratories and businesses. Every year, the platform offer grows to respond to the changing needs of the labs and businesses and the emergence of novel scientific and industrial orientations.

A new platform

In 2020, Genopole strengthened its shared-use sequencing offer by accrediting the NGS & Genomics Analyses Platform at I-Stem and participating in the financing of a range of equipment, notably an Illumina NextSeq 550 sequencer. The enablement of academic partnerships and the four-fold increase in sequencing capacities will contribute greatly to the expansion of genomics and biotherapies at Genopole.

Dedicated services for innovative therapies

The Cytopolis building now has its own scientific ancillary services suite. It is available to the building's two specialists in biotherapies R&D and industrial development: ART-TG (gene therapies) and CiTHERA (cell therapies).

Supplying concrete technological solutions

- The Bioproduction Platform has added four mini-fermenters for bacteria and yeast cultures. That addition upscales production processes, which now range from small 350 mL volumes to large 20-liter pilot-level volumes. The platform is thus further empowering the bioeconomy sector at Genopole.
- Also in the year and with Genopole's aid, the Mass Spectrometry Platform acquired four major pieces of equipment to guarantee high-quality analyses of, for example, bioproduced finished projects.
- In 2020, Genopole's technological support project Saturne attributed six pieces of equipment. These included such items as an RNA extractor, a flow cytometer, an epifluorescence video microscope, and particularly an Opera Phenix+ for the Structural Biology Platform. Cofinanced by the University of Évry, that system is able to generate tens of thousands of high-resolution images in a matter of hours. The platform thus becomes Europe's first to have this novel system.

A dynamic partnership network in 2020 despite the crisis



The background of the entire page is a microscopic image of plant cells, showing a complex network of cell walls and structures, all rendered in shades of blue. On the left side, there are several white, concentric circular lines of varying radii, and a small white icon of a globe with latitude and longitude lines.

EUROPE / INTERNATIONAL

As a leading biocluster in Europe, Genopole welcomes visiting delegations from the world-over every year. Although visits were obviously less numerous in 2020, exchanges continued throughout the year at a distance. The biocluster's international visibility actions were fruitful, particularly in Europe. The Genopole-coordinated project GEN.ERA for the strategic computational genomics sector was chosen by the European Commission and the EU|BIC certification earned by the biocluster opens doors to a European network of 130 business centers.



COMPANIES

Genopole allies four European clusters to conquer international markets

Genopole coordinates GEN.ERA (diGital gENomic alliance to Explore new maRket for Acceleration), a program selected from a call for bids by the European Commission to be a part of the European program COSME. Launched in September, GEN.ERA unites Genopole with Italian (Distretto Tecnologico Campania Bioscience), Estonian (Tartu BT Park), and Finnish (Turku Science Park Ltd) clusters, and the East-Netherlands Development Agency.

The alliance's objective is to gain access to the sector's emerging markets beyond Europe.

The project represents an important step for Genopole in its international goals. Its central role as the project's coordinator will give the biocluster European and worldwide visibility and stimulate novel interactions with key partners in the sector.

Like a single, pan-European cluster

The five partners intend to share their competencies within a common internationalization strategy, enabling them to approach world markets as a single pan-European cluster and support the development of their businesses, start-ups and SMEs in the United States and Asia.

The two-year GEN.ERA project comprises three steps: the structuration of the meta-cluster around the computational genomics value chain; deep monitoring of identified high-promise markets; and the preparation of businesses for those markets.



In charge of the first step, Genopole spent the last quarter of 2020 piloting exchanges for an inventory of the strengths available within the consortium for the computational genomics value chain. At Genopole, 12 businesses have already been identified to benefit from the initiative.

A Europe-certified motor for the economy

The European business and innovation network EBN voted unanimously to grant EU|BIC certification for Genopole. After an audit of the ecosystem and its accompaniment actions for biotechs, EBN validated Genopole's essential role in genomics R&D and innovation in France and in Europe and certified its technological, scientific, entrepreneurial and working space offer as an energizer for the creation and development of innovative companies. Genopole is currently the only EU|BIC-certified ecosystem in the Île-de-France Administrative Region recognized for its expertise in biotechnological innovation.

Increasingly interdisciplinary innovation

Genopole thus joins the network's other 130 European business & innovation centers (EU|BIC) chosen for their ability to stimulate the economic development of European regions.



"These centers work in a large range of activity sectors. It is very interesting for us to interweave ourselves within that diversity, because innovation is increasingly interdisciplinary, particularly in the health sector," comments Genopole CEO Gilles Lasserre. *"The EU|BIC certification reinforces our local and international visibility and thus our ability to attract new businesses to the biocluster and establish partnerships with other national or international organizations who, like us, are committed to supporting entrepreneurial innovation."*

COMPANIES



Construire
sa feuille
de route
Europe

Mardi 18 février 2020 à 9h30
en salle Elyseum du GIP Genopole

DRAWING A ROADMAP FOR EUROPE

The Europe & International team, in partnership with the European Union health innovation network **EIT Health** France, brought together a panorama of European funding offers in the health sector and presented good practices for responding efficaciously to European calls for proposals.

These calls are a useful doorway for businesses and laboratories seeking to work side-by-side with teams from other countries in a European dynamic. Such perspectives are made real not only by the coming framework program Horizon Europe and its European Innovation Council (EIC) but also by the EIT Health programs Incubate, Validate and Scale 2020.

COMPANIES



L'industrie des biotechs
à Singapour :
opportunités et enjeux

GIP Genopole - salle Elyseum
24 juin 2020
9h00 - 13h00

DESTINATION SINGAPORE WITH VISA4BIOTECH

For its accredited companies, Genopole held a Visa4Biotech meeting on Singapore and the opportunities there for the health and biotechnologies sectors.

The webinar, which emphasized intellectual and industry property, was organized with the French Chamber of Commerce in Singapore (FCCS), the Embassies of France in Singapore and Singapore in France, The Singapore Economic Development Board (EDB), the National Institute for Intellectual Property (INPI) and the DS Avocats law firm. Gourmey, a Genopole-accredited company, CellProthéra, an affiliate of which is implanted in Singapore, and Ipsen, an international biopharmaceuticals group with a presence in Singapore, shared their real-world experiences with doing business in that country.



TOWARD A COMMON EUROPEAN HEALTH DATA SPACE

Along with several other bioclusters, Genopole signed the ScanBalt Declaration calling for the creation of a common space for health data in Europe. As emphasized by Anne Jouvenceau, Deputy Director of Genopole:

"The question of a European space for health data is capital for the heart of Genopole's activities, for computational genomics, bioproduction, innovative therapies and precision medicine. The more we give and share a large amount of data (genomic sequences, microscopic observations, medical CT or MRI images, etc.) the more our laboratories and businesses will be able to work rapidly and efficiently."



United States

In January, Genopole went to San Francisco for the Biotech Showcase, one of the main international meet-ups dedicated to health and organized in parallel with the JP Morgan HealthCare conference. Genopole met with international investors such as New Science LLC and Leaf Ventures in “speed meetings” organized by Business France for the French delegation. About 30 meetings were held with R&D companies, CROs, pharmaceutical firms, and other entities.



Visibility on the world stage

In June, Genopole participated—online this time—in BIO USA, with the French pavilion under the coordination of Business France. This major get-together for companies and investors across the biotech ecosystem enabled more than 40 videoconference meetings. Genopole’s objective with its yearly participation in Bio USA is to give worldwide visibility first to Genopole-accompanied businesses aiming for international markets and second to the advantages of the Évry biocluster to draw foreign businesses to it. The event is also an opportunity to tighten ties and establish new agreements with other clusters, as was done in 2020 with Research Triangle Park in the United States and the Kawasaki Life Innovation Center in Japan.



GENOPOLE WELCOMES A JAPANESE DELEGATION

A delegation from the Kawasaki Life Innovation Center located south of Tokyo visited Genopole in February to better understand and take inspiration from how it functions. Kawasaki is one of Japan’s leading innovation clusters. Its ambition is to create favorable conditions for soft landings, develop business incubation and establish shared-use access for technological equipment.



AROUND THE MEDITERRANEAN SEA

Genopole was invited by its Tunisian partner BiotechPole Sidi Thabet, located north of Tunis, to participate in the inauguration of its Pharma In cluster dedicated to the pharma industry and health biotech. Genopole may accompany the Tunisian pole for the consolidation of its Fablab and for the structuration of its entrepreneurship activities. Selected in the European program The Next Society, coordinated by France Cluster, Genopole made a point of exchanging with the other clusters from a number of Mediterranean and European countries present at the event to discuss future industrial and research partnerships.



A NEW BRIDGE TO THE UNITED STATES

A Genopole team visited the United States in January to finalize partnerships started in 2019 with Research Triangle Park (North Carolina), one of America’s most important research clusters. Specifically, the team visited the North Carolina Biotechnology Center, located within Research Triangle Park, with the objective of identifying the needs of Genopole businesses and those of the American center to establish a soft-landing agreement.



COVID INITIATIVES

Genopole mobilized rapidly to support not only its accredited businesses and laboratories affected by the COVID-19 health crisis but also its campus neighbor, the South Île-de-France Medical Center. The ecosystem's strength is visible therein: a united group of actors, many very aware of the weight of serious disease, enabling rapid action in an unprecedented context.



Active solidarity

Genopole launched an action called **Genopole Solidarity** to respond to the needs of the South Île-de-France Medical Center (CHSF). Mobilizing both the labs and businesses of the biocluster and the research groups at Paris-Saclay University, the action delivered more than 100,000 gloves, 3,000 masks, 15,000 gowns, 1,000 bouffant caps and 300 liters of hand sanitizer to the CHSF.

Genopole and the Grand Paris Sud Urban Area, mobilizing with the territory's other actors organized the local production, collection and

distribution of face shields. This initiative sought to protect the personnel in contact with the public at the CHSF and in the territory's senior assisted living facilities, businesses and stores. From gratuitously providing access to 3D printers and accessories to stocking and distributing the face shields, it was the generosity of more than 20 entities, comprising businesses, labs, universities and engineering schools, that made this act of solidarity possible. Thanks to this collective momentum, the manufacturing chain was rapidly deployed, attaining a capacity of 1,000 shields per week.



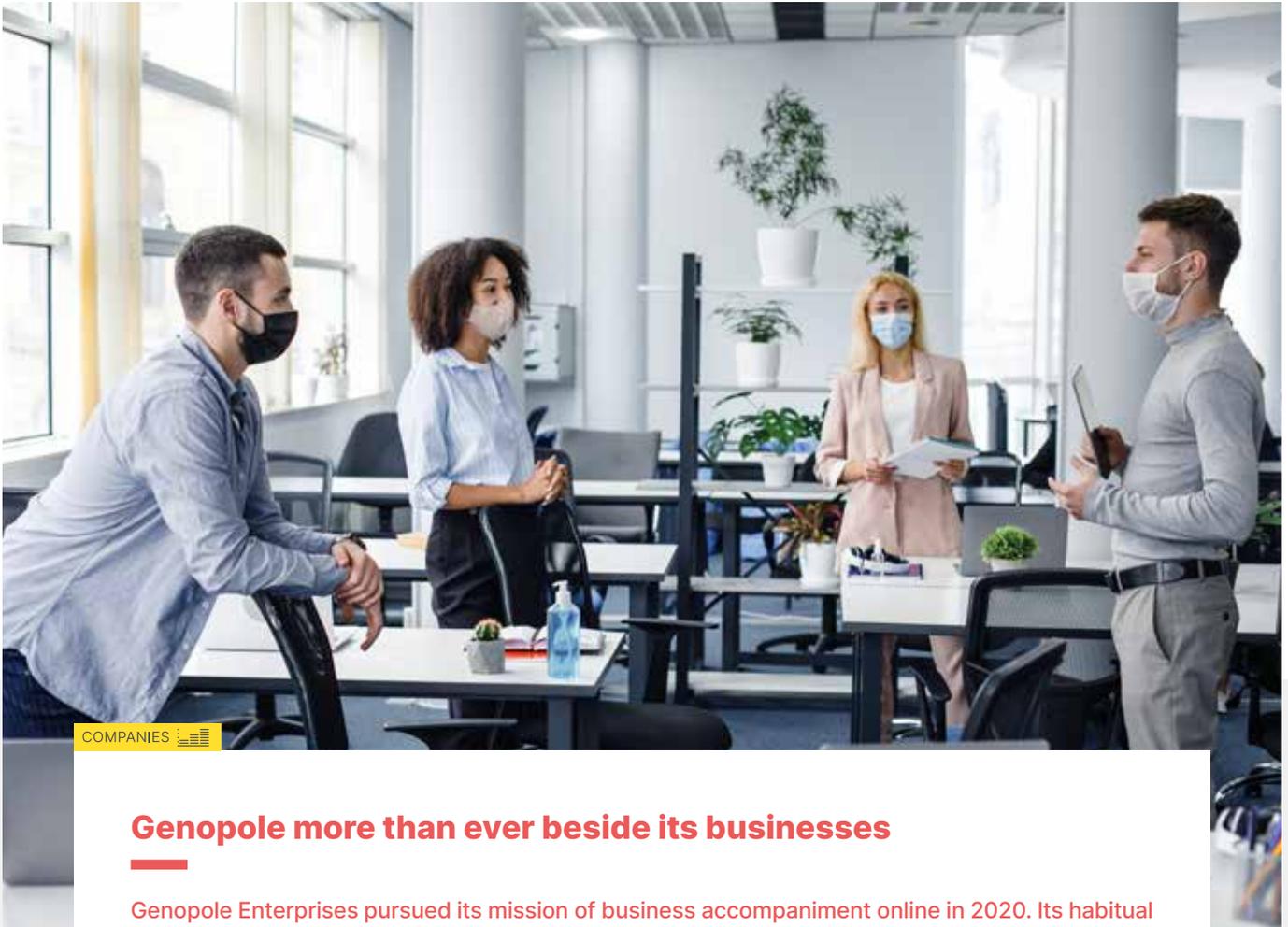
THANKING THOSE WHO DESERVE IT THE MOST

COVID-19 disheveled the lives of all and especially those of hospital workers, like the personnel at the South Île-de-France Medical Center.

So that the territory's citizens could show them the support they deserve, Genopole created a special Facebook page called "Solidarity CHSF." Every day, the employees at Genopole and its laboratories & businesses, the territory's partners (Évry-Sénart Sciences and Innovation, Grand Paris Sud Urban Area, the cities of Évry-Courcouronnes, Ris-Orangis, Corbeil-Essonnes, etc.), teachers, residents and many more posted their thank-you messages, drawings, photos, and videos for the hospital's staff members. A video comprising about 100 touching testimonials was broadcasted on the hospital's video channel.



Genopole went online to keep helping its businesses. Several among them were working actively to develop tests, devices and treatments for COVID-19.

COMPANIES 

Genopole more than ever beside its businesses

Genopole Enterprises pursued its mission of business accompaniment online in 2020. Its habitual meetings, training sessions and workshops became webinars to help Genopole's crisis-hamstrung businesses benefit from governmental measures, organize the resumption of activities, and shoulder the short and long-term consequences as best as possible. More than 50% of the onsite businesses responded to a survey designed to identify their needs and thus contribute to the deployment of individualized assistance and action plans. No Genopole companies went out of business because of the pandemic.

- 11,500 masks were provided to 19 businesses expressing such a need upon enquiry by Genopole. The masks were distributed on 15 May.
- 5 webinars were organized to provide counselling to campus entities on such subjects as commercial relations strategies, governmental fiscal and social measures, and conditions for post-lockdown resumption of lab activities (HR, health protection, accounting and regulatory issues).
- In April, Genopole surveyed its accompanied businesses to identify difficulties (reduced activity, partial unemployment, financial needs, etc.) and ease access to national measures, such as those for research tax credit reimbursements, tax postponements, and requests for state-guaranteed bank loans.



COMPANIES

INTEGRAGEN MOBILIZES WITH INSTITUT PASTEUR

Institut Pasteur a world leader in infectious diseases, chose IntegraGen, a specialist in high throughput sequencing, to operate its P2M microorganism sequencing platform for the viral National Reference Centers. P2M was one of the first non-Chinese platforms to sequence the RNA of SARS-CoV-2.



COMPANIES

AiiNTENSE LAUNCHES A NEUROLOGY TELE-EXPERTISE NETWORK

AiiNTENSE and the Île-de-France College of Neurology have launched NeuroCOVID, a neurology tele-expertise network for the management of COVID-19 patients also affected by acute or chronic neurological disorders. With the platform, physicians can obtain a neurological collegial opinion to evaluate the impact of intensive care in this particular setting. AiiNTENSE deployed NeuroCOVID and is managing it gratuitously for the duration of the health crisis.



COMPANIES

TEXCELL ABLE TO VERIFY VIRAL ELIMINATION

Texcell provides virucidal efficacy and viral clearance tests to verify the elimination of viruses in such settings as medical devices, materials disinfection, air filtration, etc. They employ carrier (or "coupon") testing to avoid biases inherent to qPCR techniques. The company has also commercialized a seroneutralization test used for the development of therapeutic serums and compounds aimed at COVID-19.



COMPANIES

ENALEES COMMERCIALIZES AN ULTRA-RAPID TEST

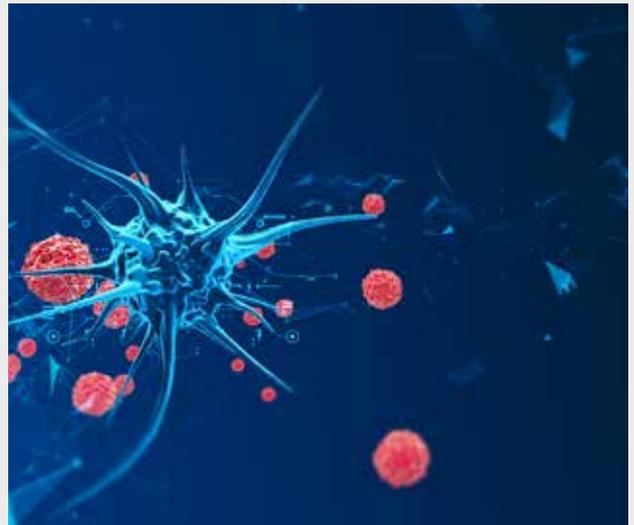
Enalees teamed with Bertin Technologies and the Institut Pasteur to develop an ultra-rapid, point-of-care COVID-19 diagnostic test able to deliver a result more reliable than those of antigen tests in less than 30 minutes. The Bec SARS-CoV-2 RT-LAMP test is referenced by the Ministry for Solidarity and Health on its COVID-19 platform.



RESEARCH

HYBRIGENICS SERVICES PARTNERS WITH INSTITUT PASTEUR AND UVE

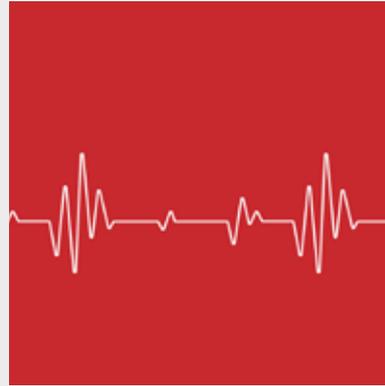
Hybrigenics Services is working with the Institut Pasteur and the Emergent Virus Unit (UVE-UMR190) to develop new reagents and bring progress to COVID-19 diagnostics and therapeutics. Genopole has made a cell sorter/cloner available to the company to optimize the yeast cell sorting needed for this work.



RESEARCH 

COVID DISEASE MAP: STRENGTHENING THE BATTLE VIA CENTRALIZED KNOWLEDGE

Anna Niarakis is a systems bioinformatics researcher within the GenHotel lab and one of the four coordinators for the international **COVID-19 Disease Map** program. Launched in the spring of 2020, the program seeks to collectively and rapidly establish a map of the entirety of host-pathogen interactions in SARS-CoV-2 infection. It thus centralizes all current and future knowledge on COVID-19 disease mechanisms in a single, progressively-enriched platform. The program aims to provide the international scientific community with a tool to accelerate knowledge on COVID-19 and the development of novel therapeutics.

COMPANIES 

AN ONLINE PRESCRIPTION ASSISTANCE TOOL

Some treatments used for COVID-19 can provoke heart rhythm disorders. The South Île-de-France Medical Center partnered with the IBISC laboratory to develop an automated tool able to calculate a risk score for adverse cardiac effects in this setting. It categorizes patients as being at low, medium or high risk, thus providing an important datum to guide the physician's choice of therapeutics. The tool is available online for all clinicians.

RESEARCH 

TOWARD MASS DIAGNOSIS OF COVID-19

Marco Mendoza, who benefitted from a Genopole **Atige** grant to create the **SysFate** research team, is launching a large-scale COVID-19 screening project called POSCOVID. This latter aims to replace individual molecular tests by the simultaneous sequencing of a great number of grouped samples. The technology comprises a DNA "barcode" to identify any one patient's sample within the group of samples. In July of 2020, POSCOVID was chosen as one of seven laureates of the special project call Fight-SARS-CoV-2 launched by DIM Elicit (Domain of Main Interest retained by the Île-de-France Administrative Region).

RESEARCH 

First operational screening center in Île-de-France

Upon the governmental requisition of public research laboratories to respond to the COVID-19 epidemic, I-Stem, in partnership with the CHSF, Genopole, the Essonne Prefecture and the regional health agency, deployed a COVID-19 RT-PCR testing platform.

With its expertise in molecular biology, I-Stem furnished its automated high throughput PCR equipment and reorganized a part of its facilities to accomplish the task. Genopole made the BSL-1 and 2 labs at the Clinical and Translational Research Center available, along with a DNA/RNA extractor able to treat 96 samples in 25 minutes. To prevent exterior contamination, the sector was isolated from the rest of the center and equipped with a negative pressure enclosure.

These installations were made available to the CHSF so that it was able to manage the predicted flood of samples to be analyzed, notably for the second wave of the pandemic. Equipped with PPE gowns, FFP2 masks, protective eyewear and doubled shoe covers and gloves, a team of about 30 volunteer scientists staffed the facilities in on-call groups.

In dates:

- **Friday, 29 May 2020:** a prefectorial order authorizes the platform for the analytical phase of RT-PCR-based detection of SARS-CoV-2 under the responsibility of the CHSF Medical Biology Laboratory Chief and for the duration of the state of emergency.
- **Wednesday, 3 June 2020:** Essonne Prefect Jean-Benoît Albertini visits the platform.
- **Monday, 15 June 2020:** The first 125 samples sent by the CHSF are analyzed, marking the launch of the first operational hospital laboratory support center in Île-de-France.





REAL-TIME INFORMATION

On Facebook, LinkedIn, Twitter and Instagram, Genopole adapted the content it relays to its subscribers, proposing both information on the COVID-19 crisis and learning supports on the specificities of the disease and its propagation, the differences between antigen and PCR tests, and other pertinent subjects.



HELPING THE YOUNG TO BUILD THEIR FUTURES

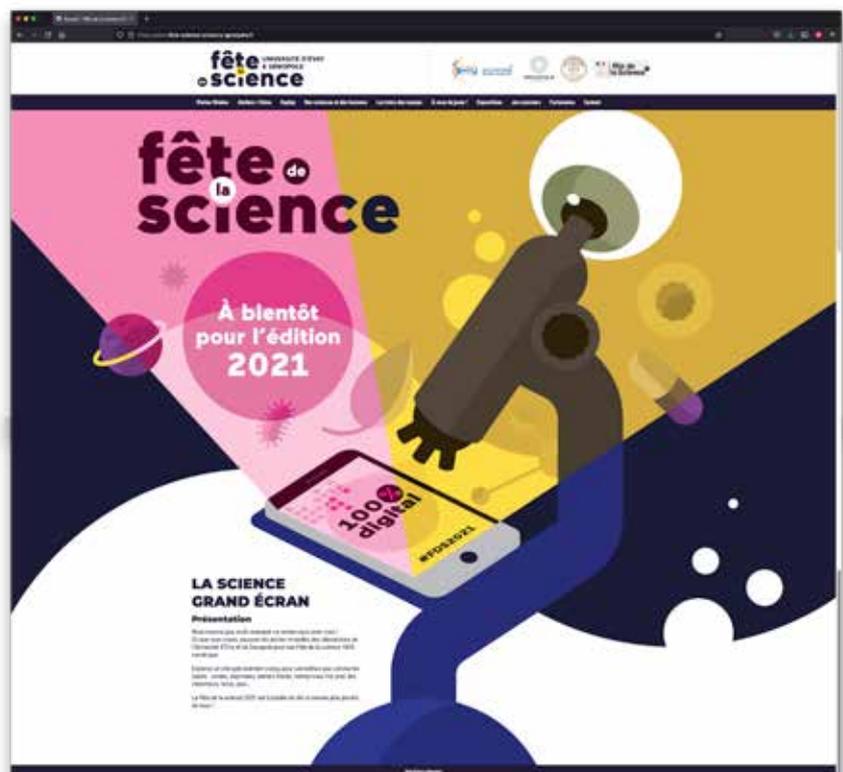
Suffering from isolation, educational difficulties and uncertain futures, today's youth are also victims of the COVID-19 pandemic. In early April, when France was under strict confinement, Genopole worked with Onisep to develop the contents of their Careers in Biology brochure. An introductory section highlighting the main functions within health biotechnologies was the result of a visit by Onisep to the Yposkesi innovative therapies manufacturing center.

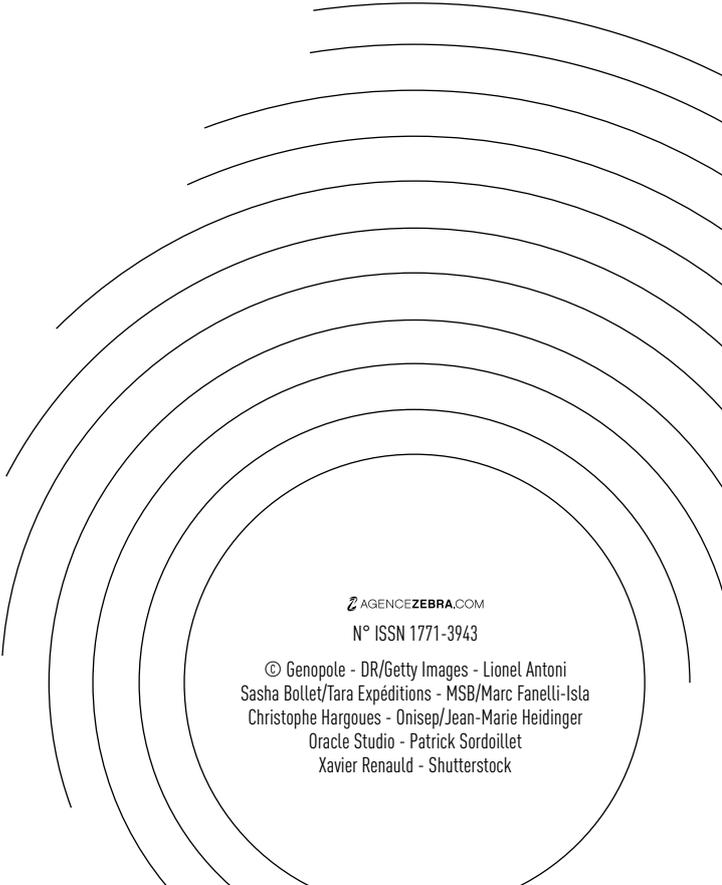


SCIENCE A CLICK AWAY

Genopole didn't let the health crisis prevent it from holding the annual Science Festival. In partnership with the University of Évry, Genopole invited the general public and learning establishments to a 100% online Science Festival held under the banner "Science on the Big Screen." Filmed visits and workshops, interviews, live meetings with scientists, tutorials for home experiments and much more were made available on a dedicated website.

Genopole's digital resources and its actors were brought together, new supports created and live discussions with researchers organized to ensure that science remained available to all, at home and at school.





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