

The France Génomique infrastructure

Colloque Alimentation – Agriculture - Environnement
Evry – 24 juin 2014





What is France Génomique ?

A national genomics and bioinformatics infrastructure, spread out on the French territory

- **All the platforms already existed under the “IBiSA” label**
- **The IA funding (60 M€) “only” covers 10% to 15% of the platforms’ budget over the 8 years period. It does however leverage our ability to:**
 - **structure and reinforce our technological offer, improve its visibility**
 - **maintain / reinforce the global expertise and ensure its rapid diffusion**
 - **invest for the medium term in new technologies and developments**

The leverage effect is very high, in terms of competitiveness

Localisation of the FG platforms



FG projects carried out in 2013	726
Publications co-authored by FG	185
Number of users trained in 2013	1284



A wide range of genomic resources and expertise

Genomics has become an indispensable component in all fields of life sciences research: the increasing diversity of technologies and applications involved cannot be mastered by any individual platform

- **Each platform has its own skills and specific field of genomic competence and applications**
- **The platforms' activities are coordinated and supervised by the FG governing bodies**
- **The projects are submitted through the FG Web portal**
- **The users have access to state-of-the-art technology & expertise and their project is carried out by the most suitable platform**



France Génomique governing bodies

- **Supervising Board**

Directors of the 4 major French research organisms involved (CEA, CNRS, INRA, Inserm)

- **Executive Board**

- CEA/DSV/IG : J. Weissenbach, P. Le Ber (Pdt), P. Wincker, JF. Deleuze
- “Regional” sequencing platforms : P. Barbry, D. Milan (VP)
- Bioinformatics/IFB : JF. Gibrat, C. Médigue

- **Scientific Review Board for project evaluation**

Two sub-committees

- Biodiversity (microorganisms, metagenomics, species of agricultural interest, etc.)
- Human genomics & animal models of human diseases

- **International Scientific Advisory Board (SAB)**

In 2014, creation of the France Génomique UMS



How to access the FG platforms ?

- **The projects are submitted at any time through the FG Website portal - the modalities for submitting, evaluating and executing the projects vary according to their size**
- **For academic projects, only the running costs of the project are invoiced to the collaborator (essentially the reagents) – on the other hand, the platform involved will co-author the resulting publications**
- **Each project is forwarded to a designated platform according to (i) the project size, (ii) the expertise that is required, (iii) the collaborator's specific wish and (iv) the availability of the platform**
- **The FG platforms are free to use (a significant) part of their resources for their own, non-FG collaborative projects, that do not follow the above rules**



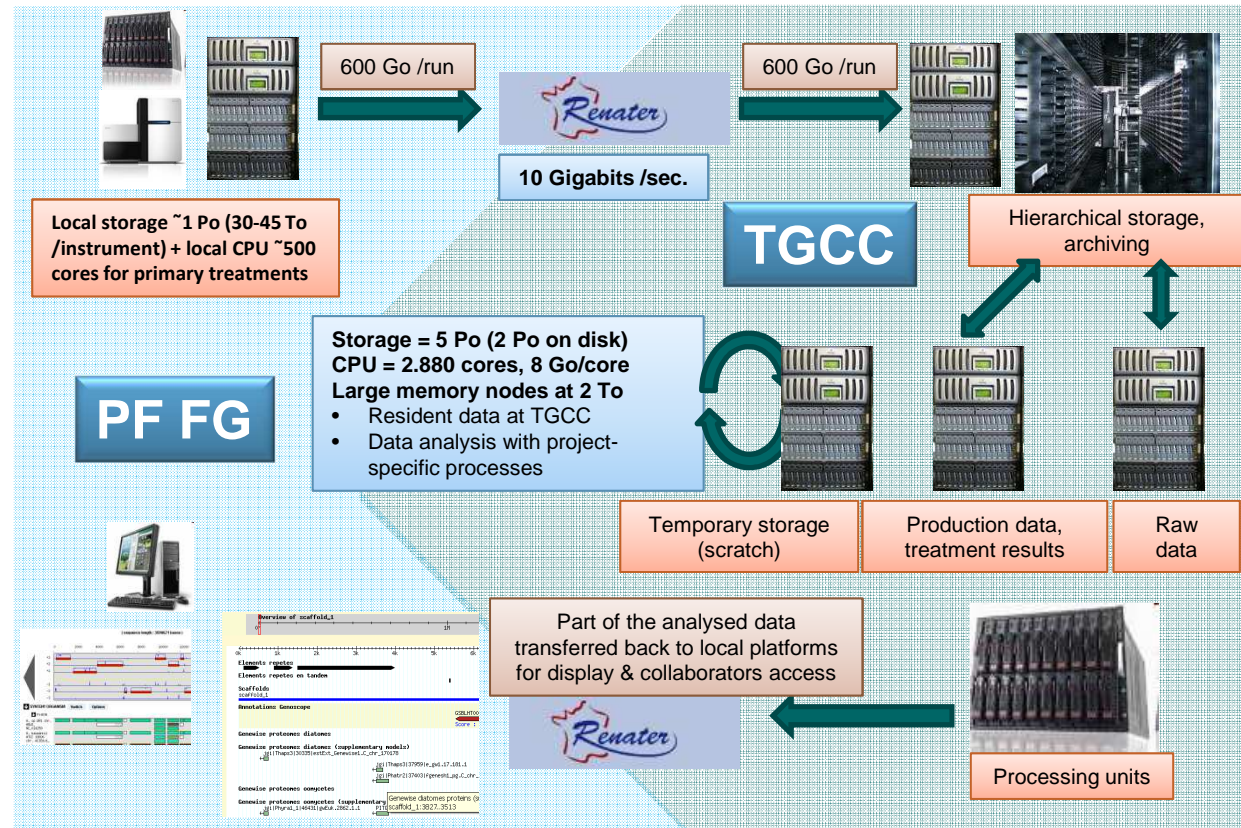
A critical mass in terms of capacity and expertise

What is at stake is the French presence and sovereignty in a field (genomics) of increasing strategic importance for the future of research, medicine and life sciences industry in general

- **Coordinated / synergised technology survey & developments (bioinformatics, "wet lab" ...), widely diffused to the community**
- **Capability to undertake very large projects with a high scientific impact: annual CFP funded by FG**
- **Improved national and international visibility, early access to new technologies (e.g. 3rd generation NGS)**
- **Dedicated data storage and computing capacities deployed at the TGCC (CEA/DAM) in Bruyères-le-Châtel**

Central IT resources: e-infrastructure

5 M€ investment at the TGCC/CCRT (CEA/DAM) in Bruyères-le-Châtel



- The change of scale had become unavoidable
- The running costs of the e-infrastructure should be taken into account in the projects' budget
- Proper balance between local and central resources to be found

"Large projects" call for proposals (CFP)

- **Focused on “very large” projects, otherwise difficult to fund, and giving to FG a high visibility**
- **First and second CFP in 2012 and 2013: 96 projects were submitted, 26 selected by the scientific review board**
- **Average funding per project (direct costs): 200 to 300 k€**
- **Next CFP to be opened early (March) 2015**

TITRE DU PROJET	DOMAINE	PORTEURS	AFFILIATION DES PORTEURS
Contribution to decipher cancer heredity	Génétique Humaine	Brigitte BRESSAC-de PAILLERETS Daniel GAUTHERET	Institut Gustave Roussy - Villejuif
The Pea genome sequencing project	Biodiversité	Judith BURSTIN	INRA UMR AgroEcologie - Dijon
Metagenomics of ancient arctic soils	Biodiversité	Jean-Michel CLAVERIE	UMR7256 CNRS-AMU - Marseille
Genomics in hematological malignancies and stem cells	Génétique Humaine	Thérèse COMMES	CHU Montpellier - Université Montpellier 2
Epigenetic inheritance and speciation in Paramecium	Biodiversité	Sandra DUHARCOURT	UMR7592 CNRS / Université Paris Diderot
Meta-OMICS from the world plankton - TARA OCEANS	Biodiversité	Eric KARSENTI Patrick WINCKER	EMBL – Heidelberg CEA / Genoscope - Evry
Myocapture : novel genes for myopathies	Génétique Humaine	Jocelyn LAPORTE	IGBMC U964, UMR7104, Université de Strasbourg
The GENESIS exome sequencing project	Génétique Humaine	Fabienne LESUEUR	INSERM U900 - Institut Curie
Microbial biogeography of French soils	Biodiversité	Lionel RANJARD	UMR1347 INRA / AgroSup / Université de Bourgogne - Dijon
IRIGIN - International Rice Genome Initiative	Biodiversité	François SABOT	UMR DIADE, IRD France SUD - Montpellier
1002 yeast genome	Biodiversité	Joseph SCHACHERER Gianni LITI	UMR7156 CNRS / Université Strasbourg UMR7284 CNRS / INSERM / Université de Nice Sophia Antipolis
Exome sequencing of schizophrenia patients	Génétique Humaine	Michel SIMONNEAU Jean-François DELEUZE	INSERM U894 - Paris CEA / CNG - Evry



Developments & technology survey

- **Mission: to maintain and reinforce the French cutting-edge expertise in genomics, bioinformatics and their applications, and to increase the proficiency of the life sciences community in general**
- **45 engineers recruited (fixed-term contracts) for developments, 2/3 of them in bioinformatics**

WP1.1 Implementation of our tools in the HPC environment at TGCC
WP1.2 Adaptation of the sequencing platforms bioinformatics environment
WP2.1 Quality control and technology evaluation
WP2.2 Evaluation of sequence mapping software
WP2.3 Evaluation of sequence assembly software
WP2.4 Variant detection in genomic data
WP2.5 Analysis of gene expression level (RNAseq)
WP2.6 Regulation of gene expression (incl. epigenomics)
WP2.7 Genomics and metagenomics data analysis

- **The knowledge, know-how and tools developed by FG should be diffused towards the life sciences community**



MUTUALISATION DES COMPÉTENCES ET DES ÉQUIPEMENTS FRANÇAIS
POUR L'ANALYSE GÉNOMIQUE ET LA BIO-INFORMATIQUE

ACCUEIL	QU'EST-CE QUE FRANCE GÉNOMIQUE ?	L'OFFRE DE FRANCE GÉNOMIQUE	GOVERNANCE	MODALITÉS DE COLLABORATION	ACTUALITÉS	F.A.Q.	CONTACTS
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FRANCE GÉNOMIQUE rassemble et mutualise les ressources des principales plateformes françaises de génomique et de bio-informatique.

Créée grâce à un financement « Investissements d'Avenir », elle a pour ambition de maintenir la recherche française au plus haut niveau de compétitivité et de performance dans la production et l'analyse des données de génomique, à la pointe de l'état de l'art à l'échelle internationale.

Elle offre à la communauté scientifique publique et privée l'accès aux plateformes françaises les plus performantes, un accompagnement des projets, le plus haut niveau d'expertise et de compétences mutualisées ainsi que la possibilité de participer à des projets ambitieux au niveau national et international.



INTRANET



DÉVELOPPEMENT
& VEILLE
TECHNOLOGIQUE



PLATE-FORMES
OPÉRATIONNELLES
EN GÉNOMIQUE
& BIOINFORMATIQUE



FRANCE GÉNOMIQUE
RECRUTE

NOMBREUX POSTES À POURVOIR



SOUMETTRE UN
PROJET

OUVERT EN CONTINU

DERNIÈRES INFORMATIONS

12 décembre 2012

PUBLICATION DES RÉSULTATS DE L'AAP 2012 « GRANDS PROJETS DE SÉQUENÇAGE »

France Génomique publie, ci-dessous, la liste des projets retenus dans le cadre de son AAP 2012 « Grands Projets de Séquençage ». Parmi les projets (...)

Thank you for your attention

pleber@genoscope.cns.fr

www.france-genomique.org