Guillaume Filion

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PERSONAL INFORMATION

Born in Drummondville (Canada) September 4, 1979.

Languages French, English, Spanish, Russian, Dutch, German.

RESEARCH EXPERIENCE

from 2012: Junior group leader
Center for Genomic Regulation (Barcelona, Spain)

My current focus is to understand how genomes are organized. To this aim, we are developing technologies to study position effects. This requires new statistical and computational methods that are also developed within the team.

2008-2011: Post-doctoral fellow in the lab of Bas van Steensel
Netherlands Cancer Institute (Amsterdam, The Netherlands)

During my post-doc, my collaborators and myself redefined the Drosophila *chromatin. Using genome-wide technologies and computational tools, we proposed a classification of chromatin in 5 basic states that suggests the existence of yet-to-discover silencing mechanisms.*

2004-2007: PhD thesis in the lab of Pierre-Antoine Defossez
Curie Institute (Paris, France)

During my PhD, I discovered two new mammalian zinc finger proteins able to bind meCpGs (ZBTB4 and ZBTB38). Using an in vitro *method that I developed, I could show that those proteins have different intrinsic binding specificities.*

EDUCATION

2003-2004: M2, Human Genetics
Université Denis Diderot (Paris, France)

2001-2003: M2, Molecular Biology
Ecole Normale Supérieure (Lyon, France)

2000-2001: L3 (BSc) Biology
Concordia University (Montreal, Canada)

1998-2000: L2 Biology
Université Claude Bernard (Lyon, France)

COMPETITIVE FUNDING

2017-2019 Plan Estatal. 120 K€ for consumables.
2015-2017 AGAUR. 13 K€ for consumables.
2014-2019 ERC Synergy Grant. 2.2 M€ distributed in salaries and consumables.
2012-2015 EpiGeneSys RISE1. 150 K€ for a post-doc position.
2012-2016 Marie Curie Career Integration Grant. 80 K€ for consumables.
2013-2016 Plan Nacional. 150 K€ for a post-doc position.

PRIZES AND AWARDS

2012 RISE1 member of the EpiGeneSys network.
2006 EMBO Short-Term mobility fellowship.
2000 École Normale Supérieure de Lyon (first rank).

MEETING ORGANIZATION

EpiGeneSys Meeting: Spain, 2014
CRG Symposium: Spain, 2015
4D Synergy Meeting: Spain, 2016

EDITORIAL EXPERIENCE

PLOS Computational Biology
PLOS Genetics

TEACHING EXPERIENCE

2014-2016: Summer school SMTB
Research practicals for highschool students (Puschino, Russia)

2008-2015: Occasional university lectures
M2 students, Universitat Pompeu Fabra (Barcelona, Spain)
M1 students, Vrije Universiteit (Amsterdam, The Netherlands)
Université Paul Sabatier (Toulouse, France).

2004-2007: Mendelian genetics
L2 students, Université Denis Diderot (Paris, France)

PRESENTATIONS AT MEETINGS (selection from 18)

Meeting of the Catalan Society of Virology: Spain, 2016
Second Danube Epigenetics Conference: Hungary, 2016
Intelligent Systems for Molecular Biology: Ireland, 2015
Network Models in Cellular Regulation: Spain, 2015
Statistical Methods for Post Genomic Data: Germany, 2015
Society for Bioinformatics in Northern Europe: Norway, 2014
EpiGeneSys meeting: United Kingdom, 2013
Boheringer meeting: Germany, 2012
Epigenetics, from bases to pathology: France, 2011
EMBL Functional Genomics meeting: Germany, 2010
Dutch-Belgian Chromatin meeting: The Netherlands, 2010

REVIEWING EXPERIENCE

I wrote peer reviews for academic journals including Nature Biotechnology, Nature Methods, Nature Communications, Cell Reports, PLOS Genetics, Nucleic Acids Research, PLOS ONE, BMC Genomics, Chromosome Research, Nucleus. Text and statistics available at Publons `https://publons.com/author/315077/guillaume-filion#stats`.

EVALUATION PANELS

2017 IRI Life Sciences. Berlin, Germany.

SOFTWARE DEVELOPMENT

2015: Zerone `https://github.com/nanakiksc/zerone`
2014: Seeq `https://github.com/ezorita/seeq`
2014: Starcode `https://github.com/gui11aume/starcode`

COMMUNITY & OUTREACH ACTIVITIES

2012-present: Author of a blog on statistics and their application to biology (`http://blog.thegrandlocus.com`)

2016: Presentation at the 9th Barcelona DataBeers
Antiga Fàbrica Estrella Damm (Barcelona, Spain)

2006: Organizer of a career development workshop during the Course on Epigenetics
Curie Institute (Paris, France)

2006-2007: Board member of the PhD students association
Curie Institute (Paris, France)

RESEARCH ARTICLES

1. Corrales-Berjano M, Rosado-Díez A, Cortini R, van Arensbergen J, van Steensel B, **Filion GJ**, *Clustering of Drosophila housekeeping promoters facilitates their expression*, ***Genome Res***, doi: 10.1101/gr.211433.116 (2017).
2. Chen HC, Martinez JP, Zorita E, Meyerhans A, **Filion GJ**, *Position effects influence HIV latency reversal*, ***Nat Struct Mol Biol***, Vol. 24 pp.47-54 (2017).
3. Cuscó P, **Filion GJ**, *Zerone: a ChIP-seq discretizer for multiple replicates with built-in quality control*, ***Bioinformatics***, Vol. 32 pp. 2896-902 (2016).
4. Corrales-Berjano M, Cuscó P, Usmanova DR, Chen HC, Bogatyreva NS, **Filion GJ**, Ivankov DN. *Machine Learning: How Much Does It Tell about Protein Folding Rates?*, ***PLoS ONE***, Vol. 10 e0143166. doi: 10.1371/journal.pone.0143166 (2015).
5. Zorita E, Cuscó P, **Filion GJ**. *Starcode: sequence clustering based on all-pairs search*, ***Bioinformatics***, Vol. 31 pp. 1913-9 (2015).
6. Le Dily F, Baù D, Pohl A, Vicent GP, Serra F, Soronellas D, Castellano G, Wright RH, Ballare C, **Filion G**, Marti-Renom MA, Beato M. *Distinct structural transitions of chromatin topological domains correlate with coordinated hormone-induced gene regulation*, ***Genes & Development***, Vol. 19 pp. 2151-62 (2014).
7. van Bemmel J, **Filion GJ**, Rosado A, Talhout W, de Haas M, van Welsem T, van Leeuwen F, van Steensel B. *A network model of the molecular organization of chromatin in Drosophila*, ***Molecular Cell***, Vol. 49 pp. 759-71 (2013).
8. Steglich B, **Filion G**, van Steensel B, Ekwall K. *The inner nuclear membrane proteins Man1 and Ima1 link to two different types of chromatin at the nuclear periphery in S. pombe*, ***Nucleus***, Vol. 3 pp. 77–87 (2012).
9. **Filion GJ**, van Bemmel JG, Braunschweig U, Talhout W, Kind J, Ward LD, Brugman W, de Castro Genebra de Jesus I, Kerkhoven RM, Bussemaker H, van Steensel B, *Systematic protein location mapping reveals five principal chromatin types in Drosophila cells*, ***Cell***, Vol. 143, pp. 212–24 (2010).
10. van Steensel B, Braunschweig U, **Filion GJ**, Chen M, van Bemmel JG, Ideker T, *Bayesian network analysis of targeting interactions in chromatin*, ***Genome Research***, Vol. 20, pp. 190–200 (2010).
11. Yamada D, Pérez-Torrado R, **Filion GJ**, Caly M, Jammart B, Devignot V, Sasai N, Ravassard P, Mallet J, Sastre-Garau X, Schmitz ML, Defossez PA, *The Human protein kinase HIPK2 phosphorylates and downregulates the methyl-binding transcription factor ZBTB4*, ***Oncogene***, Vol. 28, pp. 2535–44 (2009).
12. Augui S, **Filion GJ**, Huart S, Nora E, Guggiari M, Maresca M, Sterwart AF, Heard E, *Sensing X chromosome pairs before X inactivation via a novel X-pairing region of the Xic*, ***Science***, Vol. 318, pp. 1632–6 (2007).
13. **Filion GJ**, Fouvry L, Defossez PA, *Using reverse electrophoretic mobility shift assay to measure and compare protein-DNA binding affinities*, ***Analytical Biochemistry***, Vol. 357, pp. 156–8 (2006).
14. **Filion GJ**, Zhenilo S, Salozhin S, Yamada D, Prokhortchouk E, Defossez PA, *A family of human zinc finger proteins that bind methylated DNA and repress transcription* ***Molecular and Cellular Biology***, Vol. 26, pp. 169–81 (2006).
15. Defossez PA, Kelly KF **Filion GJ**, Perez-Torrado R, Magdinier F, Menoni H, Nordgaard CL, Daniel JM, Gilson E, *The human enhancer blocker CTC-binding factor interacts with the transcription factor Kaiso* ***Journal of Biological Chemistry***, Vol. 280, pp. 43017–23 (2005).

RVIEWS, BOOK CHAPTERS AND OPINION ARTICLES

1. Corrales-Berjano M, **Filion GJ**, *Modeling chromatin states* (2017, in press).
2. **Filion GJ**, Betao M. *3D genome structure. Organization of the nucleus in space and time*, ***FEBS Letters***, Vol. 589 pp. 28678 (2015).
3. **Filion GJ**. *The signed Kolmogorov-Smirnov test: why it should not be used*, ***Gigascience***, Vol. 4 doi: 10.1186/s13742-015-0048-7 (2015).
4. **Filion GJ**, van Steensel B, *Reassessing the abundance of H3K9me2 chromatin domains in embryonic stem cells*, ***Nat Genet***, Vol. 42, p. 4 (2010).
5. **Filion GJ**, Paul RE, Robert V, *Transmission and immunity: the importance of heterogeneity in the fight against malaria*, ***Trends in Parasitology***, Vol. 22, pp. 345–8 (2006).