Florian **Wünnemann**

Postdoctoral fellow at the Lettre lab

Montreal Heart Institute

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***Research and scientific interests**: Human genetics, Single cell OMICS, Heart development, Bioinformatics, Interactive data visualizations*

Experience

Montreal Heart Institute — *Montreal, Canada*

Postdoc — *Aug. 2018- ongoing*

- Single-cell technologies, Polygenic risk scores, Large-scale CRISPR applications, Atherosclerosis

Education

University of Münster / CHU Sainte Justine Research Center — *Münster, Germany / Montreal, Canada*

Ph.D. (Dr.rer.nat) — *Apr. 2014 - Apr.2018*

- The role of genetic factors in pathogenesis and progression of cardiac malformations

University of Münster — *Münster, Germany*

MSc - Life sciences — *Oct. 2011 - Feb. 2014*

- Functional and genetic characterization of a novel arrhythmic syndrome

University of Münster — *Münster, Germany*

BSc - Physiology — *Oct. 2008 - Sep. 2011*

- Impact of nutrient limitation in insects: Comparative genomics of the pea aphid and the human body louse

Research Experience

IEB, University of Münster — *Münster, Germany*

Student Research assistant — *Jan. 2012 - Jul.2012*

- Acquisti group

IEB, University of Münster — *Münster, Germany*

Student assistant — *Sep. 2011 - Dec. 2011*

- Acquisti group

IEB, University of Münster — *Münster, Germany*

Student assistant — *Mar.2011 - May 2011*

- Bornberg-Bauer group

Funding

2019 - 2021 Postdoctoral Training (Canadian citizens and permanent residents) scholarship, Fonds de recherche Québec santé (FRQS)

Achievements and Awards

2019 Jean-Louis Levesque 1st price for best presentation by the Foundation of the Montreal Heart Institute (MHI), 22nd Montreal Heart Institute research day

2017 Prix d'excellence by the Fondation du recherche du Québec (FRQS) for the best presentation, 32e Congrès de la recherche des étudiantes des cycles supérieurs et des post-doctorants en recherche au CHU Sainte-Justine

2016 Markwald Award for presentation with most unusual clarity. Weinstein Cardiovascular Development and Regeneration Conference 2016

Presentations

American Society of Human Genetics (ASHG) Meeting 2019 — *Houston, Texas, USA*

Prioritization of genomic loci for coronary artery disease using targeted CRISPR screens for endothelial dysfunction — *15.10.2019 - 19.10.2019*

XXIIe Journée de la recherche ICM — *Montreal, Canada*

Validation of genome-wide polygenic risk scores for coronary artery disease in French Canadians — *06.06.2019 - 06.06.2019*

American Society of Human Genetics (ASHG) Meeting 2017 — *Orlando, Florida, USA*

Identification of a novel marker for valve maturation: Loss of ADAMTS19 function causes progressive valve disease in mice and men — *18.10.2017 - 18.10.2017*

Congrès de la recherche des étudiantes des cycles supérieurs et des post-doctorants en recherche au CHU Sainte-Justine — *Montreal, Canada*

Heart valve dysfunction in men and mice is caused by loss of function mutations in Adamts19, a novel marker for valvular interstitial cells — *26.05.2017 - 26.05.2017*

Weinstein Cardiovascular Development and Regeneration Conference 2016 — *Durham, North Carolina, USA*

Loss of Adamts19, a novel marker for valvular interstitial cell populations during valve maturation, causes aortic valve dysfunction — *18.05.2016 - 21.05.2016*

Evolgen, collaborative meeting on genome evolution — *Ciążeń, Poland*

ACTransDB: An online database for Acanthamoeba castellani transcripts, — *27.06.2012 - 28.06.2012*

2nd Muenster graduate school evolution symposium — *University of Münster, Germany*

Biogeochemistry meets molecular evolution via metagenomics: tracing nitrogen fluxes from ecosystems to genomes in microbial communities — *18.06.2012 - 19.06.2012*

Poster presentations

Weinstein Cardiovascular Development and Regeneration Conference — *Nara, Japan*

A single-cell perspective on growth and maturation pathways in the mouse heart. — *16.05.2018 - 18.05.2018*

American Society of Human Genetics (ASHG) 2014 — *San Diego, California, USA*

De novo mutation in SOX18 causes a novel form of Hypotrichosis-Lymphedema-Telangiectasia with severe vascular defects — *18.10.2014 - 22.10.2014*

42nd Annual Meeting of the Ecological Society of Germany, Austria and Switzerland 2012 — *Lueneburg, Germany*

Soil metagenomics to unravel the signature of fertilizers on the molecular composition of the bacterial ribosome — *10.09.2012 - 14.09.2012*

Publications

- **Wünnemann, F.**, Tadjo, T. F., Beaudoin, M., Lalonde, S., Lo, K. S., & Lettre, G. (2021). CRISPR perturbations at many coronary artery disease loci impair vascular endothelial cell functions. bioRxiv.
- **Wünnemann, F.**&ast, Ta-Shma, A.&ast, Preuss, C., Leclerc, S., Vliet, P. P. van, Oneglia, A., Thibeault, M., Nordquist, E., Lincoln, J., Scharfenberg, F., & others. (2020). Loss of ADAMTS19 causes progressive non-syndromic heart valve disease. Nature Genetics, 52(1), 40–47. ***Authors contributed equally**
- Audain, E., Wilsdon, A., Breckpot, J., Izarzugaza, J. M., Fitzgerald, T. W., Kahlert, A., Sifrim, A., **Wuennemann, F.**, Perez-Riverol, Y., Abdul-Khaliq, H., & others. (2020). Integrative analysis of genomic variants reveals new associations of candidate haploinsufficient genes with congenital heart disease. bioRxiv.
- Gould, R. A., Aziz, H., Woods, C. E., Seman-Senderos, M. A., Sparks, E., Preuss, C., **Wünnemann, F.**, Bedja, D., Moats, C. R., McClymont, S. A., & others. (2019). ROBO4 variants predispose individuals to bicuspid aortic valve and thoracic aortic aneurysm. Nature Genetics, 51(1), 42–50.
- Luyckx, I., Kumar, A. A., Reyniers, E., Dekeyser, E., Vanderstraeten, K., Vandeweyer, G., **Wünnemann, F.**, Preuss, C., Mazzella, J.-M., Goudot, G., & others. (2019). Copy number variation analysis in bicuspid aortic valve-related aortopathy identifies TBX20 as a contributing gene. European Journal of Human Genetics, 27(7), 1033–1043.
- **Wünnemann, F.**, Sin Lo, K., Langford-Avelar, A., Busseuil, D., Dubé, M.-P., Tardif, J.-C., & Lettre, G. (2019). Validation of genome-wide polygenic risk scores for coronary artery disease in french canadians. Circulation: Genomic and Precision Medicine, 12(6), e002481.

- Gillis, E., Kumar, A. A., Luyckx, I., Preuss, C., Cannaerts, E., Van De Beek, G., Wieschendorf, B., Alaerts, M., Bolar, N., Vandeweyer, G., & **others.** (2017). Candidate gene resequencing in a large bicuspid aortic valve-associated thoracic aortic aneurysm cohort: SMAD6 as an important contributor. Frontiers in Physiology, 8, 400.
- **Wünnemann, F.**, Kokta, V., Leclerc, S., Thibeault, M., McCuaig, C., Hatami, A., Stheneur, C., Grenier, J.-C., Awadalla, P., Mitchell, G. A., & others. (2016). Aortic dilatation associated with a de novo mutation in the SOX18 gene: Expanding the clinical spectrum of hypotrichosis-lymphedema-telangiectasia syndrome. Canadian Journal of Cardiology, 32(1), 135–e1.
- Preuss, C.&ast, Capredon, M.&ast, **Wünnemann, F.**&ast, Chetaille, P., Prince, A., Godard, B., Leclerc, S., Sobreira, N., Ling, H., Awadalla, P., & others. (2016). Family based whole exome sequencing reveals the multifaceted role of notch signaling in congenital heart disease. PLoS Genetics, 12(10), e1006335. ***Authors contributed equally**
- Chetaille, P., Preuss, C., Burkhard, S., Côté, J.-M., Houde, C., Castilloux, J., Piché, J., Gosset, N., Leclerc, S., **Wünnemann, F.**, & others. (2014). Mutations in SGOL1 cause a novel cohesinopathy affecting heart and gut rhythm. Nature Genetics, 46(11), 1245.