Nicolas Denans, PhD

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Professional Summary

- Accomplished scientist with nearly 20 years of experience in Molecular/Cellular Biology, Immunology, Bioengineering and Microscopy, leading to 10 scientific publications.
- Direct supervisor of several graduate students and a technician for more than 2 years.
- Interdisciplinary collaborator with experience in bioinformatics.
- Excellent communicator with proven track records in motivating teams leading to deliver the research outcome at 10 scientific conferences with 3 as invited speaker.

Technical Skills

- Molecular Biology (DNA & RNA works, cloning (conventional, Gateway, Gibson), PCR (conventional, RT-PCR, quantitative PCR))
- Functional Genomics (Gene editing with CRISPR/Cas9/Cas12a/Cas13d, generating transgenic or knock-out line, forward genetic screening)
- Cell Biology (mammalian cell culture (cos7) and primary cells (MEF), transfection, isolation of Chicken Primordium Germ Cells for chicken transgenesis, cell-based assays, flow cytometry, confocal microscopy, *In situ* hybridization)
- Protein works (Western blotting, immunostaining, Pull-down assay)
- Virology (Avian virus harvest, inoculation, and titration)
- Single-cell RNA sequencing (cell harvesting to library prep)
- Next Generation Sequencing (2ndary analysis using R in RNA-seq, single-cell RNA-seq)
- Animal works (Mouse, zebrafish, chicken)
- Bioengineering (optogenetic control of myosin motors, nanobody engineering)

Transferable Skills

- Experienced scientific writing as primary author of 3 research publications.
- Experienced scientific communication by presenting at international conferences. (1 travel award)
- Experienced mentoring/supervising lab-based technicians and students.
- Experienced critical evaluation via peer review.
- Experienced collaborate closely with other research teams across a diverse range of research functions including computational biology, proteomics, and flow-cytometry core.

Research Experience

Postdoc., Stowers Institute for Medical research 2017-present

- Unveiled a sequence of anti-inflammatory activation of macrophages during tissue regeneration in zebrafish using high resolution confocal microscopy and scRNA-seq
- Discovered a new population of immune cells required for tissue regeneration using scRNA-seq
- Developed a nanobody based method for *in vivo* tissue specific protein degradation

- Directly supervised a technician for 2 years and several graduate students
- Generated more than 10 transgenic zebrafish (KO and KI using CRISPR/Cas9)

Postdoc., Stanford University 2014-2017

- Engineered optogenetically myosin motors to specifically manipulate cell protrusions
- Developed a cell (Cos7) and microscopy (confocal) based assay to test cell protrusion interactors
- Collaborated to generate transgenic chickens by isolating, culturing and transfecting primordium germ cells
- Collaborated to apply proximity ligation-based assay *in vivo*
- Supervised 5 rotation students

PhD., Stowers Institute for Medical research and University of Strasbourg 2008-2013

- Uncovered a new role for Hox genes in regulating body axis extension by colinear repression of the Wnt pathway
- Developed an *in vivo* luciferase assay to assess for Wnt pathway activity
- Performed gain and loss-of-function using plasmid or siRNA electroporation *in vivo*.

Masters and undergrad, University of Aix-Marseille II, France 2004-2007

- Performed in situ hybridization screen on mouse embryonic spine
- Developed a 2-photon confocal microscopy assay to image muscle development in embryonic chicken.
- Performed a lacZ reporter assay to identify the minimal promoter sequence driving the expression of *foxa* in ascidians.

Selected Publications (https://scholar.google.com/citations?user=Ipd2jKwAAAAJ&hl=en)

- **Denans** et al., "An anti-inflammatory sequence governs macrophage transcriptional dynamics during tissue injury" *BioRxiv*, DOI: 10.1101/2021.09.28.462132 **2021** (* co-corresponding authors). In revision at *Nature Communications*
- Zhang, **Denans** et al., "Optogenetic manipulation of cellular communication using engineered myosin motors" *Nature Cell Biology*, 23(2):198-208, **2021**
- **Denans** et al., "Hox genes control vertebrate axis elongation by collinear wnt repression" *Elife*, **2015**
- Benazeraf et al., "a random cell motility gradient downstream of FGF controls elongation of an amniote embryo" *Nature*, 466:248-52, **2010**

Education

- **PhD** in developmental biology at the university of Strasbourg, France 2011
- **MA** in developmental biology, immunology and neurobiology at the University of Aix-MarseilleII, France 2007
- **B.Sc**. in molecular/cellular biology at the University of Aix-MarseilleII, France 2004