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VINCENT BOUDREAU

As a computational cell biologist and microscopist, I believe you can observe a lot by just watching. I am currently focused on developing a new model system to study algal symbiosis with wide ranging implications from evolutionary, ecological, biotechnological and cellular biology.

EXPERIENCE

POSTDOCTORAL FELLOW
UC BERKELEY/SAN FRANCISCO
2019-Present

Using a wild species of the large and regenerative unicellular ciliate, Stentor, I am studying the structural, metabolic and behavioural relationship between the ciliate and its algal endosymbionts. I am currently developing this Stentor species as a model system for studying algal symbioses and how these symbioses affect photosynthetic efficiency in the labs of Dr. Wallace Marshall and Dr. Krishna Niyogi.

LECTURER
UC BERKELEY
2021

Established a seminar class for freshmen undergraduates at UC Berkeley titled "Coral bleaching: impacts of a changing climate on the cell biology of an algal symbiosis". Lectured about climate change, algal symbiosis and led class discussions around assigned reading.

WHITMAN FELLOW
MARINE BIOLOGICAL LABORATORY
2020-Present

As a Whitman Fellow at the Marine Biological Laboratory, I established a temporary summer laboratory to study Stentor in its native environment. Working near the organism's habitat allowed me to develop culturing protocols, generate large quantities of biological material such as DNA for genome sequencing, and investigate this organism's photosynthetic capabilities.

SUBGROUP CO-FOUNDER/
CO-ORGANIZER
CELL BIO MEETING
2020

To create community and explore the topics of symbiosis and immunity, I co-founded and co-organized the Cell Interactions Betweem Organisms subgroup at the annual American Society for Cell Biology meeting in 2020. This subgroup drew over 100 audience members for nine talks.

BOARD MEMBER
Future of Research, LLC
2018-2020

Future of Research (FoR) is a 501(c)(3) nonprofit organization created for and by early career researchers to make the research enterprise more sustainable for future generations of scientists. I executed fundraising initiatives and contributed to our efforts in incentivizing scientific societies to include early career researchers in leadership positions across the research enterprise.

RESEARCH FACILITATOR
Physiology Course
Marine Biological Laboratory
Woods Hole, MA
Summers 2016-2018

Under Dr. Wallace Marshall's supervision, I developed a research plan and oversaw the success of the Physiology Course's students in answering biological questions in a discovery-based setting. We examined the cell biological and metabolic relationship between a wild species of the pond dwelling protist Stentor and its endosymbiotic alga.

CO-ORGANIZER &
CO-FOUNDER
The Triangle Cytoskeleton Meeting
2014-2017

Through the Triangle Cytoskeleton Meeting, our team aimed to provide a forum to present and discuss cutting edge research on the cytoskeleton in addition to promoting communication and collaboration between research institutions. Our 2014 to 2016 meetings gathered a total of over 600 attendees and raised more than $60K in grants, sponsorships and awards.

CITY COORDINATOR
Research Triangle Park
Pint of Science US
2016

Through a series of discussions about the importance, the similarities, the differences and the processes of pursuing art and science, we strived to bridge the communication gap between the general public and highly skilled artists and scientists.

EDUCATION

GRADUATE STUDENT
Biology
UNC-Chapel Hill
Chapel Hill, NC
2012-2019

Under Dr. Paul Maddox's supervision, I studied the cell biological and biophysical components of nuclear expansion as nuclei are assembled. Used cultured human cells, flies and worms as model organisms and genetic, cell biological, imaging and computational image analysis as tools.

VISITING STUDENT
Biophysics
UC, Berkeley
Berkeley, CA
Spring 2016

Established a collaboration with Dr. Hernan Garcia's lab to study the timing and regulation of transcription activation with respect to cell division using advanced microscopy, image analysis and computational biology approaches. This work was initiated in the context of the Physiology Course at the Marine Biological Laboratory.

STUDENT
Physiology Course
Marine Biological Laboratory
Woods Hole, MA
Summer 2015

Completed this research-based, intensive bootcamp-like course aimed at bridging the biological, physical and computational sciences to lead to new research discoveries. During the course I discovered a new structure within a pond-dwelling organism that physically anchors the organism's endosymbiotic algae.

UNDERGRADUATE STUDENT
Biochemistry
University of Montreal
Montreal, QC
2009-2012

Under the supervision of Dr. Vincent Archambault, I conducted genetic and proteomic screens to identify novel molecular interactions of critical importance to the exit from mitosis using the fly embryo.

PUBLICATIONS

Edwards, A., Linehan, J.B., Maddox P.S. & **Boudreau V.** (2021) Single-particle tracking of dynein identifies PP2A B55/SUR-6 as a cell cycle regulator of cortical force generation. bioRxiv; doi: 10.1101/2021.10.22.465443

Bankston, A., Davis, S. M., Moore, E., Niziolek, C. A., **Boudreau V.** (2020) Research Culture: Why scientific societies should involve more early-career researchers. eLife; doi: 10.7554/eLife.60829.

Dumont M.*, Gamba R.*, Gestraud P, Klaasen S, Worrall J.T., De Vries S.G., **Boudreau V.**, Maddox P.S., Lens S.M.A., Kops G.J.P.L., Mc Clelland S., Miga K.H. & Fachinetti D. (2019) Human chromosome-specific aneuploidy is influenced by DNA-dependent centromeric features. EMBO J; doi: 10.15252/embj.2019102924 *equal contribution

Boudreau V., Chen R., Edwards A., Muhammad S., Maddox P.S. (2019) PP2A-B55/SUR-6 collaborates with the nuclear lamina for centrosome separation during mitotic entry. Mol Biol Cell; doi: 10.1091/mbc.E18-10-0631. Featured in MBoC's Fifth Annual Special Issue on Quantitative Cell Biology

Hatkevich T., **Boudreau V.**, Rubin T., Huynh J.-R., Maddox P.S., Sekelsky J. (2019) Centromeric SMC1 promotes centromere clustering and stabilizes meiotic homolog pairing. PLoS Genetics; doi: 10.1371/journal.pgen.1008412.

Mehsen M., **Boudreau V.**, Garrido D., Bouroh M., Larouche M., Maddox P.S., Swan A., Archambault V. (2018) PP2A-B55 promotes nuclear envelope reformation after mitosis in Drosophila. J Cell Biol, vol 217, 4106-4123

Byrnes A.E., Lowe B.F., **Boudreau V.**, Slep K.C. Polarized TOG arrays cooperatively bind tubulin to promote microtubule dynamics. (in revision)

Boudreau V., Hazel J., Sellinger J.K., Chen P., Manakova K., Radzyminski R., Garcia H.G., Allard J., Gatlin J., Maddox P.S. (2018) Nucleo-cytoplasmic trafficking regulates nuclear surface area during nuclear organogenesis. bioRxiv 326140; doi: https://doi.org/10.1101/326140 (in revision)

Ryan J., Gerhold A.R., **Boudreau V.**, Smith L., Maddox P.S. (2017) Introduction to Modern Methods in Light Microscopy. In: Markaki Y., Harz H. (eds) Light Microscopy. Methods in Molecular Biology, vol 1563. Humana Press, New York, NY

FUNDING

SYMBIOSIS MODEL SYSTEMS GRANT (GBMF) 2020-Present	Funding for the development of new tools for advancing model systems in aquatic symbiosis, Gordon and Betty Moore Foundation (grant awarded to Dr. Wallace Marshall and Dr. Krishna Niyogi)
WHITMAN FELLOWSHIP 2020-Present	Funding to conduct independent research at the Marine Biological Laboratory in Woods Hole, MA
DOCTORAL FELLOWSHIP 2014-2017	*Fonds de recherche en sant é du Québec*(FRSQ) - Quebec's NIH Competitive funding: 25% success rate
POST COURSE RESEARCH FELLOWSHIP - 2016	Funding to conduct research in Dr. Hernan Garcia's laboratory at the University of California - Berkeley
PHYSIOLOGY COURSE Summer 2015	Burroughs Wellcome Fund and Caswell Grave Scholarship Fund
MASTER'S FELLOWSHIP 2012-2014	*Fonds de recherche en santé du Québec* (FRSQ) - Quebec's NIH Competitive funding: 33.8% success rate
RESEARCH FELLOWSHIP 2012-2014	*Faculté des études supérieures et postdoctorales* (FESP) Support for the direct transition to the PhD from the BSc
UNDERGRADUATE FELLOWSHIP 2010	The Canadian Society for Mucopolysaccharide and Related Diseases

PRIZES

TRAVEL AWARD 2019	Gilbert Travel Award (University of North Carolina at Chapel Hill) to attend the Journal of Cell Science "Cell Dynamics: Organelle-Cytoskeleton Interface" meeting in Lisbon, Portugal
HONOR SOCIETY INDUCTION 2018	Induction into the "Frank Porter Graham Graduate and Professional Student Honor Society" of the University of North Carolina at Chapel Hill
TRAVEL AWARD 2015	Travel award to attend the American Society for Cell Biology's 2015 annual meeting in San Diego, CA Geston & Schatz, P.C.
OUTSTANDING POSTER PRESENTATION - 2015	Developmental & Stem Cell Biology Symposium University of North Carolina at Chapel Hill
BEST ORAL PRESENTATION 2013	Simon-Pierre Noël prize - Biochemistry department University of Montreal
BEST POSTER PRESENTATION 2012	GE Healthcare prize 4th IRIC Scientific Day, University of Montreal
BEST POSTER PRESENTATION Second place 2012	Canadian Society for Molecular Biosciences (CSMB) Biochemistry department, University of Montreal

PRESENTATIONS

INVITED SPEAKER Plasticity in Biological Organization - Telluride, CO 2021	Algal mind-control: phototaxis of the giant ciliate *Stentor pyriformis* is mediated by algal endosymbionts
WHITMAN BROWN BAG Whitman Center seminar series - MBL, MA 2021	Algal mind-control: phototaxis of the giant ciliate *Stentor pyriformis* is mediated by algal endosymbionts
VIRTUAL TALK Young Investigator Ciliate Molecular Biology Conference 2020	Algal mind-control: phototaxis of the giant ciliate *Stentor pyriformis* is mediated by algal endosymbionts
VIRTUAL TALK Symbiosis Model Systems Virtual Gathering (GBMF) 2020	Algal mind-control: phototaxis of the giant ciliate *Stentor pyriformis* is mediated by algal endosymbionts
WHITMAN BROWN BAG Whitman Center seminar series - MBL, MA 2020	Algal mind-control: phototaxis of the giant ciliate *Stentor pyriformis* is mediated by algal endosymbionts
MINISYMPOSIUM TALK ASCB Annual Meeting - Philadelphia, PA 2017	Nuclear organogenesis requires nuclear surface area regulation through nucleo-cytoplasmic trafficking
TALK Triangle Cytoskeleton Meeting - Saxapahaw, NC 2017	PP2A-B55 and Lamin B collaborate in regulating centrosome migration during mitotic spindle formation
TALK Kinetochore Dynamics Meeting - Copenhagen, DK 2015	Completing mitosis requires the timely reactivation of nucleocytoplasmic trafficking
INVITED SPEAKER University of Sherbrooke 2014	*PP2A interagit génétiquement et physiquement avec le centromère* Biochemistry department symposium
TALK MCCCM 2012	PP2A-B55/Tws collaborates with CENP-C for the cell cycle progression and regulates merotelic kinetochore-microtubule attachments in anaphase Montreal Cell Cycle and Cytoskeleton Meeting

LANGUAGES

ENGLISH FRENCH RUSSIAN