

**BIOGRAPHICAL SKETCH**

NAME Claire Wyart, Ph.D.	POSITION TITLE Independent Group Leader		
Nationality: USA & France			
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Ecole Normale Ulm, Paris, FR	B.Sc.	1998	Biology & Physics
Ecole Normale Ulm, Paris, FR	M.Sc.	1999	Neuroscience
Louis Pasteur University, Strasbourg, FR	Ph.D.	2003	Biophysics & Neuroscience
University of California in Berkeley, CA, USA	Postdoc	2005-2010	Biophysics & Neuroscience

**Professional Experience****Positions**

2005-2009: Postdoctoral Fellow, Dept. Molecular and Cellular Biology, UC Berkeley, USA  
 2009-2010: Life Science Research Associate, Dept. Mol. and Cell. Biology, UC Berkeley, USA  
 2009-2010: PI position declined in Riken BSI, Max Planck free-floating group leader & NERF  
 2011-now: ATIP-Avenir Group Leader, Institut du Cerveau et de la Moelle épinière (ICM), France  
 2011: Inserm CR1 Position through national competitive selection  
 2013-now: Promotion to leader of an Inserm research team

**Teaching in international schools and graduate programs**

CSHL Imaging Neurons Course [2015, 2016]  
 Champalimaud Neuroscience Program [2016, 2017]  
 Graduate Program of the Brain Research Max Planck Institute in Frankfurt [2015]  
 Institute of Neuroscience ION, Shanghai [2015]  
 University UPMC Paris-6 & University Descartes Paris-5 [2011-17]  
 FENS Optogenetics: Causal Neuroscience Course in Bertinoro [2011-13]  
 Copenhagen Optogenetic Course [2011], Curie & UPMC Optogenetics course [2012-2016]

**Prizes**

EMBO-Young Investigator Program (EMBO-YIP) Award	2017
Fondation Schlumberger for Research & Education (FSER)	2017
New York Stem Cell Foundation (NYSCF) Innovator Neuroscience Award	2016
Irene Joliot-Curie Prize	2013
Human Frontier Research Program – Coordinator Research Grant	2013
European Research Council - Starting Grant	2012
Emergence Prize from the City of Paris	2012
Prize of the Bettencourt-Schueller Foundation	2011
Chair of Excellence of School of Neurosciences of Paris (ENP)	2011
Inserm CR1 Position through national competitive selection	2011
CNRS CR1 Position through national competitive selection ( <i>declined</i> )	2011
SfN Chapter Award, Zebrafish Genetics & Development Meeting Best Poster Award	2009
Prize of the Foundation Blancmesnil for documentary Terma	2005
Best PhD from Louis Pasteur University, Prize “Défi Jeunes” for science project Terma	2004

## Research grants

2017 EMBO-YIP [2017-2020]

2017 Laureate of the Fondation Schlumberger for Research & Education (FSER) [2017-2020]

Title: *Neuronal modulation of secretion in the cerebrospinal fluid*

New York Stem Cell Foundation (NYSCF) Robertson Young Innovator Award [2017-2021]

Title: *From fish to macaques, investigation of a sensory interface linking cerebrospinal fluid to motor circuits*

Human Frontier Science Program (HFSP) Research Grant: # RGP0063/2014 [2013-17]

Title: *Sensory-motor integration in cerebrospinal fluid-contacting neurons* (CW, Coordinator)

National Institutes of Health (NIH) # 11928047 [2014-17]

Title: *3D holography for 3D optogenetic control of neuronal activity at the single cell resolution*

European Research Council (ERC) Starting Grant # 311673 (CW, PI coordinator) [2013-18]

Title: *Optoloco, Dynamic sensory-motor integration in spinal circuits*

Marie Curie International Reintegration Grant (IRG) [2012-16], Title: "Optoloco, Generating novel transgenic lines to probe circuits underlying locomotion"

Grants for trainees: HFSP, EMBO, Wings for Life, Research-in-Paris, ENP, FRM, Erasmus.

## Trainees

Ph.D. Students advised – E Warp [2008-12], O Mirat [2011-13], L Djenoune [2011-15], S Knafo [2012-15], U Böhm [2012-16], K Fidelin [2012-16], J Sternberg [2012-16], C Oldfield [2012-16], L Desban [2014-2018], Ming-Yue Wu [2016-current], Feng Quan [2017-now]

Postdoctoral Associates – C Stokes [2012-13], M Demarque [2012], C Burcklé [2013], K Severi [2013-2017], A Prendergast [2014-now], J Hubbard [2014-2017], Y Belarif-Cantaut [2016-current], L Djenoune [2016], A Orts Del'Imagine [2017-current], A Dumitrescu [2017-current], M Carbo-Tano [2017-now], O Thouvenin [2017-now]

## Selected peer-reviewed publications [orcid: 0000-0002-1668-4975]

- Knafo S, Wyart C [2017]. Bioluminescence Monitoring of Neuronal Activity in Freely Moving Zebrafish Larvae. **eLife**, *in press*.

- Knafo S\*, Fidelin K\*, Prendergast A, Tseng PE, Parrin A, Dickey CW, Bohm UL, Nunes Figueiredo S, Thouvenin O, Pascal-Moussellard H, Wyart C [2017]. Mechanosensory neurons control the timing of spinal microcircuit selection during locomotion. **eLife** 6:e25260 DOI: 10.7554/eLife.25260

- Djenoune L, Desban L, Gomez J, Sternberg JR, Prendergast A, Langui D, Quan FB, Marnas H, Auer TO, Rio JP, Del Bene F, Bardet PL, [Wyart C](#) [2017]. The dual developmental origin of spinal cerebrospinal fluid-contacting neurons gives rise to distinct functional subtypes, **Scientific Reports** 7:719.
- Hubbard J, Böhm U, Prendergast A, Tseng PE, Stokes C, Newman M, [Wyart C](#) [2016]. GABAergic sensory neurons project onto key elements of the escape circuit, **Current Biology** 26: 2841-2853.
- Sternberg J\*, Severi K\*, Fidelin K, Gomez J, Ihara H, Alcheikh Y, Hubbard J, Kawakami K, Suster M, [Wyart C](#) [2016]. Optimization of Botulinum toxin to probe the role of specific interneurons in innate locomotion. **Current Biology**, 26: 2319-28.
- Hernandez O, Papagiakoumou E, Tanese D, Fidelin K, [Wyart C](#), Emiliani V [2016]. Three-dimensional spatiotemporal focusing of holographic patterns, **Nature Communications**, 7:11928.
- Rupprecht P, Prendergast A, [Wyart C](#), Friedrich RW. Remote z-scanning with an acrosopic voice coil motor for fast 3D multiphoton laser scanning microscopy [2016]. **Biomedical Optics Express** 7, 1656-1671.
- Böhm U\*, Prendergast A\*, Djenoune L, Nunes Figueiredo S, Gomez J, Stokes C, Kaiser S, Suster M, Kawakami K, Charpentier M, Concordet JP, Rio JP, Del Bene F, [Wyart C](#) [2016]. CSF-contacting neurons regulate locomotion by relaying mechanical stimuli to spinal circuits. **Nature Communications**, 7:10866.
- Fidelin K, Djenoune L, Stokes C, Prendergast A, Gomez J, Baradel A, Del Bene F, [Wyart C](#) [2015]. State-Dependent Modulation of Locomotion by GABAergic Spinal Sensory Neurons. **Current Biology** 25: 3035-47.
- Auer TO, Xiao T, Bercier V, Gebhardt C, Duroure K, Concordet JP, [Wyart C](#), Suster M, Kawakami K, Wittbrodt J, Baier H, Del Bene F [2015]. Deletion of a kinesin I motor unmasks a mechanism of homeostatic branching control by neurotrophin-3. **Elife** 4.
- De Vico Fallani F, Corazzol M, Sternberg J, [Wyart C](#), Chavez M [2015]. Hierarchy of neural organization in the embryonic spinal cord: Granger-Causality graph analysis of in vivo calcium imaging data. **IEEE Trans Neural Syst Rehabil Eng**. 2015 May;23(3):333-41.
- Quan FB, Dubessy C, Galant S, Kenigfest NB, Djenoune L, Leprince J, [Wyart C](#), Lihmann I, Tostivint H [2015]. Comparative distribution and in vitro activities of the urotensin II-related peptides URP1 and URP2 in zebrafish: evidence for their colocalization in spinal cerebrospinal fluid-contacting neurons. **PLoS One** 10:e0119290.
- Lauterbach MA, Ronzitti E, Sternberg JR, [Wyart C](#), Emiliani V [2015]. Fast Calcium Imaging with Optical Sectioning via HiLo Microscopy. **Plos One** 10: e0143681.
- Goetz JG, Steed E, Ferreira RR, Roth S, Ramsbacher C, Boselli F, Charvin G, Liebling M, [Wyart C](#), Schwab Y, Vermot J [2014]. Endothelial cilia mediate low flow sensing during zebrafish vascular development. **Cell Reports** 6:799-808.
- Djenoune L, Khabou H, Joubert F, Nunes Figueiredo S, Bodineau L, Del Bene F, Burcklé C, Tostivint H, [Wyart C](#) [2014]. Investigation of spinal cerebrospinal fluid-contacting neurons expressing PKD2L1: evidence for a conserved system from fish to primates. **Frontiers in Neuroanatomy** 6, 8:26.
- Mirat O, Sternberg JR, Severi KE, [Wyart C](#) [2013]. ZebraZoom: an automated program for high-throughput behavioral analysis and categorization. **Frontiers in Neural Circuits** 7:107.
- Hong E, Santhakumar K, Akitake CA, Ahn SJ, Thisse C, Thisse B, [Wyart C](#), Mangin JM, Halpern M [2013]. Cholinergic left-right asymmetry in the habenulo-interpeduncular pathway. **PNAS** 110: 21171-76.
- Warp E, Agarwal G, [Wyart C](#), Friedmann D, Oldfield CS, A Conner, Del Bene F, Arrenberg AB, Baier H, Isacoff EY [2012]. Emergence of patterned activity in the developing zebrafish spinal cord. **Current Biology** 22: 93-102.
- Del Bene F\*, [Wyart C](#)\*, Robles E, Tran A, Looger LL, Scott EK, Isacoff EY, Baier H [2010]. Filtering of visual information in the tectum by an identified neural circuit. **Science** 330: 669-673.
- Janovjak H, Szobota S, [Wyart C](#), Trauner D, Isacoff EY [2010]. A light-gated, potassium-selective glutamate receptor for the optical inhibition of neuronal firing. **Nature Neuroscience** 13: 1027-1032.
- [Wyart C](#)\*, Del Bene F\*, Warp E, Scott EK, Trauner D, Baier H, Isacoff EY [2009]. Optogenetic dissection of a behavioural module in the vertebrate spinal cord. **Nature** 461: 407-410.
- Pautot S, [Wyart C](#), Isacoff EY [2008]. Colloid-guided assembly of oriented 3D neuronal networks. **Nature Methods** 5: 735-740.
- Szobota S, Gorostiza P, Del Bene F, [Wyart C](#), Fortin DL, Kolstad KD, Tulyathan O, Volgraf M, Numano R, Aaron HL, Scott EK, Kramer RH, Flannery J, Baier H, Trauner D, Isacoff EY [2007]. Remote control of neuronal activity with a light-gated glutamate receptor. **Neuron** 45: 535-545.

- Wyart C, Webster WW, Chen JH, Wilson SR, McClary A, Khan RM, Sobel N [2007]. Smelling a single component of male sweat alters levels of cortisol in women. **The Journal of Neuroscience** 27: 1261-1265.
- Salome R, Kremer Y, Dieudonne S, Léger JF, Krichevsky O, Wyart C, Chatenay D [2006]. Ultrafast random-access scanning in two-photon microscopy using acousto-optic deflectors. **Journal of Neuroscience Methods** 154: 161-174.
- Wyart C, Cocco S, Bourdieu L, Léger JF, Herr C, Chatenay D [2005]. Dynamics of excitatory synaptic components in sustained firing at low rates. **Journal of Neurophysiology** 93: 3370-3380.
- Wyart C, Ybert C, Bourdieu L, Herr C, Prinz C, Chatenay D [2002]. Constrained synaptic connectivity in functional mammalian neuronal networks grown on patterned surfaces. **Journal of Neuroscience Methods** 117: 123-131.
- Knowles RB, Wyart C, Buldyrev SV, Cruz L, Urbanc B, Hasselmo ME, Stanley HE, Hyman BT [1999]. Plaque-induced neurite abnormalities: implications for disruption of neural networks in Alzheimer's disease. **PNAS** 96: 5274-5279.

## Selected chapters and reviews

- Orts-Del'Immagine A and Wyart C [2017]. Quick Guide: Cerebrospinal fluid-contacting neurons. **Current Biology**, *in press*.
- Djenoune L and Wyart C [2017]. Light on a sensory interface linking the cerebrospinal fluid to motor circuits in vertebrates, **Journal of Neurogenetics**: 1-15.
- Böhm and Wyart C [2016]. Sensory circuits in motion. **Current Opinion in Neurobiology** 41: 38-43.
- Desban L and Wyart C [2016]. BEHAVIOR. A brain conditioned for social defeat. **Science**, 352:42-3.
- Prendergast A and Wyart C [2016]. Locomotion: Electrical Coupling of Motor and Premotor Neurons. **Current Biology**, 26: R235-7.
- Sternberg JR and Wyart C [2015]. Neuronal Wiring: Linking Dendrite Placement to Synapse Formation. **Current Biology** 25: 190-191.
- Knafo S and Wyart C [2015]. Optogenetic neuromodulation: new tools for monitoring and breaking neural circuits. **Annals of Physical and Rehabilitation Medicine** 58: 259-264.
- Wyart C and Knafo S [2015]. Sensorimotor Integration in the Spinal Cord, from Behaviors to Circuits: New Tools to Close the Loop? *New Techniques in Systems Neuroscience*, **Springer**, p.197-234.
- Fidelin K and Wyart C [2014]. Inhibition and motor control in the developing zebrafish spinal cord. **Current Opinion in Neurobiology** 26: 103-109.
- Portugues R, Severi KE, Wyart C, Ahrens MB [2013]. Optogenetics in a transparent animal: circuit function in the larval zebrafish. **Current Opinion in Neurobiology** 23: 119-126.
- Del Bene F and Wyart C [2012]. Optogenetics: a new enlightenment age for zebrafish neurobiology. **Dev. Neurobiol.** 72:404-414.
- Wyart C and Del Bene F [2011]. Let there be light: zebrafish neurobiology and the optogenetic revolution. **Reviews in Neuroscience** 22:121-130.
- Wyart C, Ybert C, Douarche C, Herr C, Chatenay D, Bourdieu L [2005]. A new technique to control the architecture of neuronal networks *in vitro*. **Karger Publishers**.