ARNAUD HUBSTENBERGER, PhD.

232 Corniche de Magnan
06000 Nice
Date of birth: March 23rd, 1980
Citizenship: French
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EDUCATION

1998-2000	'DEUG' degree in Biology.	University of Versailles Saint Quentin en Yvelines, France
2000-2002	'Magistère' degree Molecular and Cellular Biology	École Normale Supérieure de Lyon, University of Lyon I, France
2002-2003	'DEA' degree Molecular and Cellular Biology Mark: rank 1st	University of Joseph Fourier, Grenoble, France
2003-2006	PhD degree in Cellular and Molecular Biology	University of Joseph Fourier, Grenoble, France

RESEARCH EXPERIENCE

2001 **Summer internship**. Director: M. Vivaudou. Molecular and cellular biophysics laboratory, UMR 5090 (CNRS/UJF/CEA), 38054 Grenoble, France.
Subject: ABC transporter protein and K-ATP channel regulation.

2002 **Summer internship.** Director: C. Dehay. Neuroscience laboratory, INSERM U371, 69675 Bron Cedex, France.
Subject: Cell cycle kinetics of mouse cortical stem cells.

2003 **Predoctoral training.** Director: D. Rousseau. Signal transduction laboratory, INSERM EMI-0104, DRDC CEA-Grenoble, 38054 Grenoble, France.
Subject: Identification of S100B mitochondrial target.

2004-2006 **PhD.** Director: D. Rousseau and J. Baudier. Signal transduction laboratory, INSERM EMI-0104, DRDC CEA-Grenoble, 38054 Grenoble, France.
Subject: MSBP Protein is a regulator of mitochondria asymmetric distribution.

2007-2013 **Post-doctorate**. Director: T.C. Evans. Cell and developmental biology department, University of Colorado, Denver Anschutz Medical Campus, 12801 East 17th Avenue, Aurora, Colorado 80045, USA.
Subject: mRNA translation control and ribonucleoprotein supramolecular organization in C. *elegans* germline.

2013-2017 **Post-doctorate**. Director: D. Weil. Developmental biology laboratory, UMR 7622, University of Pierre and Marie Curie, 7 quai Saint-Bernard, 75252 PARIS Cedex 5, France.
Subject: Deregulation of ribonucleprotein phase transitions and aggregation in degenerative diseases.

2017-present **Team leader.** Institut de Biologie Valrose, CNRS UMR7277, Inserm U1091, UNS Université Nice Sophia Antipolis, Parc Valrose, 06108 Nice Cedex 2, France.
Subject: Epitranscriptomics : RNP multiscale organization, phase transitions, and the adaptive regulations of gene expression during early development.

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AREAS OF EXPERTISE

- Developmental Biology of germline and early embryogenesis in C *elegans*
- Cell Biology and Live Imaging (C *elegans* and primary cells in culture)
- Genetics and Molecular Biology of gene expression regulations
- Biochemistry of RNP coassembly
- Biophysics of RNP phase transitions
- Systems Biology of gene expression (Large scale transcriptomics and proteomics)

TEACHING ACTIVITIES

2004-2006	Cellular biology, laboratory, Master 1, University of Joseph Fourier, Grenoble, France.
2008-2013	High school outreach program, University of Colorado, USA.
2009-2013	Molecular biology, paper analysis, Graduate School, University of Colorado, USA.
2018	Master student thesis jury, 2 days

SUPERVISION

- Post-doctorate supervision: S. Ecsedy (2018-present); M. Khier (2018-present)
- MD student supervision: S. Keenan (2011-2012).
- PhD rotating student supervision: V. Willis (2008); A. Blasky (2009); S. Gutman (2010); M. Scully (2011); M. Ballas (2012).
- Undergrad student supervision: L. Crompton L. (2011); A. Osterberg (2012); A. Bahri (2018), .
- Engineer supervision: Z. Yi (2016-2017)
- Technician supervision: D. Hathorn (2008-2010); R. Shtofman (2009-2012); C. Cameron (2009-2012); C. Segalas (2013-2017).
- Thesis comitee: Nadia Formicola; Kavya-Vinayan Pushpalatha; Constance Humblot (2017-2018).
- Thesis jury (examinateur): Camilla Arguelles (06-23-2017), Lucia Bruzzone Balseiro (03-19-2018).

COLLABORATIONS

- Coordination of an Emergence project, Idex Sorbonne Universités, (88 k€), in collaboration with J. Mozziconacci, Theoretical Physics for Condensed Matter Laboratory, UPMC, CNRS UMR 7600, Paris, France (2014)
- Collaboration with Zoher Gueroui, Ecole Normale Supérieure Ulm, Chemistry department, Paris, France (2017-). « Synthetic biology of RNP granules. »

FELLOWSHIPS, GRANTS AND AWARDS

2002-2003	Master II scholarship.
2003-2006	PhD fellowship. “Contrat de Formation par la Recherche du CEA”.
2013-2015	Post-doctorate grant. ‘’Financement Espoir de la Recherche de la FRM’’. FRM : SPF20130526681 (111 k€), ‘RNP phase transition deregulation and aggregation, new models for degenerative diseases’. Written by Arnaud Hubstenberger (UMR7622, UPMC, Paris)
2015-2016	IDEX Sorbonne Universités, research grant, Emergence project, (88 k€), ‘High throughput determination of the 3D organization of cellular RNA assemblies’. Written by A. Hubstenberger (UMR7622, UPMC, Paris), associated partner J. Mozziconacci (Laboratoire de Physique Théorique de la Matière Condensée, LPTMC).
2016	Recruitment as a permanent CR1 researcher at CNRS, section 22. Rank 2^{d} for the competitive recruitment.

2017-19 Young team leader starting grant, ATIP-AVENIR (CNRS-INSERM) (180k€ + 108k€ salary), 'Epi-Transcriptomics : RNP multiscale organization, phase transitions and the adaptative régulation of gene expression during early development'.

2018 IDEX jedi "Complexité et diversité du vivant", research grant (50 k€), 'Epi-Transcriptomics : RNP multiscale organization, phase transitions and the adaptative régulation of gene expression during early development'

2018 IDEX jedi, UCA, post-doctorate-grant (112 k€), « RNP multiscale organization, phase transitions, and the coordination of RNA networks in adaptive responses »

2018 Award of the Academy of sciences (Académie des sciences, Institut de france), "Les Grandes Avancées Françaises en Biologie"

SCIENTIFIC PRODUCTION

PUBLICATIONS:

1- Hubstenberger, A., Labourdette, G., Baudier, J., and Rousseau, D. (2008). ATAD 3A and ATAD 3B are distal 1p-located genes differentially expressed in human glioma cell lines and present in vitro anti-oncogenic and chemoresistant properties. Exp Cell Res *314*, 2870-2883.

2- Gilquin, B., Taillebourg, E., Cherradi, N., Hubstenberger, A., Gay, O., Merle, N., Assard, N., Fauvarque, M.O., Tomohiro, S., Kuge, O*., et al.* (2010b). The AAA+ ATPase ATAD3A controls mitochondrial dynamics at the interface of the inner and outer membranes. Mol Cell Biol *30*, 1984-1996.

3- Gilquin, B., Cannon, B.R., Hubstenberger, A., Moulouel, B., Falk, E., Merle, N., Assard, N., Kieffer, S., Rousseau, D., Wilder, P.T*., et al.* (2010a). The calcium-dependent interaction between S100B and the mitochondrial AAA ATPase ATAD3A and the role of this complex in the cytoplasmic processing of ATAD3A. Mol Cell Biol *30*, 2724-2736.

4- Hubstenberger, A., Merle, N., Charton, R., Brandolin, G., and Rousseau, D. (2010). Topological analysis of ATAD3A insertion in purified human mitochondria. J Bioenerg Biomembr *42*, 143-150.

5- Merle, N., Feraud, O., Gilquin, B., Hubstenberger, A., Kieffer-Jacquinot, S., Assard, N., Bennaceur-Griscelli, A., Honnorat, J., and Baudier, J. (2012). ATAD3B is a human embryonic stem cell specific mitochondrial protein, re-expressed in cancer cells, that functions as dominant negative for the ubiquitous ATAD3A. Mitochondrion *12*, 441-448.

6- Hubstenberger, A., Cameron, C., Shtofman, R., Gutman, S., and Evans, T.C. (2012). A network of PUF proteins and Ras signaling promote mRNA repression and oogenesis in C. elegans. Dev Biol *366*, 218-231.

7- Li, S., Lamarche, F., Charton, R., Delphin, C., Gires, O., Hubstenberger, A., Schlattner, U., and Rousseau, D. (2013). Expression analysis of ATAD3 isoforms in rodent and human cell lines and tissues. Gene *535*, 60-69.

8- Hubstenberger, A., Noble, S.L., Cameron, C., and Evans, T.C. (2013). Translation Repressors, an RNA Helicase, and Developmental Cues Control RNP Phase Transitions during Early Development. Dev Cell *27*, 161-173.

9- Hubstenberger, A.*, Cameron, C., Noble, S.L., Keenan S., and Evans, T.C (2015). Modifiers of solid RNP granules control normal RNP dynamics and mRNA activity in early development. J Cell Biol *211(3), 703–16*.

10- Hubstenberger, A. **, Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi, Z., Morlot, J.B., Munier, A., Fradet, M., Daunesse, M., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D. ** (2017). P-body purification reveals the condensation of repressed mRNA regulons. Mol Cell 68(1),144-157.

(*) In focus, J Cell Biol. *211(3):487–487*, Solidifying the view of RNP dynamics, Short B.
(**) Corresponding author.

MEETING, INVITED SPEAKER:

11/03-06/2017 15th Chinese Biophysics Congress, Shanghai, China. 'RNP phase transitions and the coordination of RNA regulons'. Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

04/13-20/2018 Bellairs Workshop on "The Physical Basis of Cellular Adaptation and Memory", McGill's Research Institute, Barbados. 'RNP phase transitions and the coordination of RNA regulons'. Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

04/13-20/2018 Institut de France, Académie des Sciences, les grandes avancées françaises en Biologie. 'Coordination de l'expression des gènes : comment des séparations de phase organisent le transcriptome". Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

04/12/2019 Keystone Symposia, Biomolecular Condensates: Phase Separated organizers of Cellular Biochemistry, Snowbird, Utah, USA. 'RNP phase transitions during development'. Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi, Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D.

MEETING, ORAL COMMUNICATION:

03/27/2014 André Picard meeting, Early Development, Morphogenesis et Evolution, Muséum National d'Histoire Naturelle, Paris, France. 'Ribonucleoprotein transitions between soluble, liquid and solid phases during early development'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

09/04/2014 FEBS-EMBO International meeting, SFBBM bursary, Paris, France, August 30-September 4, 2014. 'Ribonucleoprotein transitions between soluble, liquid and solid phases during early development'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

09/01/2015 VerMidi XVIII Meeting, Institut Jacques Monod, Paris, France. 'Ribonucleoprotein transitions between soluble, liquid and solid phases during early development'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

12/09/2016 VIP seminar, Ecole Normale Supérieure, Paris, France. 'mRNP phase transitions coordinate mRNA regulons'. Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi,Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D. VerMidi XVIII Meeting, Institut Jacques Monod, Paris, France. 'Ribonucleoprotein transitions between soluble, liquid and solid phases during early development'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

02/07/2017 Keystone Symposia, Protein-RNA Interactions: Scale, Mechanisms, Structure and Function of Coding and Noncoding RNPs, Banff, Canada. 'P-Bodies Condense Coordinately Repressed mRNA Regulons'. Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi, Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D.

07/24/2017 EMBO conference, RNA localization and local translation, Barga, Italy. 'P-body purification reveals how repressed mRNA regulons condense'. Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

01/26/2018 VerMidi XXI Meeting, CIML, Marseille, France. 'RNP phase transitions and the coordination of RNA expression'. Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

02/09/2018 Signalife Labex conference, Multiple facets of RNA in development and disease, Nice, France. 'P-body purification reveals how repressed mRNA regulons condense'. Hubstenberger, A., Courel, Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

MEETING, POSTER COMMUNICATION:

07/20/2006 9th European symposium on calcium-binding proteins in normal and transformed cells, Strasbourg, France, July 19-22, 2006. 'Identification and characterization of MSBP, a new S100B target protein, that regulates mitochondria repartition'. Hubstenberger, A., Kuge, O., Rousseau, D., Baudier, J.

06/26/2009 17th International C. elegans Meeting. University of California, Los Angeles, June 24–28, 2009. 'The Ras/MPK-1 pathway controls mRNPs and their regulators during oogenesis'. Hubstenberger, A., Noble S.L., Evans, T.C.

06/30/2015 EMBO conference, RNA Localization and Local Translation, Hersonissos, Greece, June 28-July 3, 2015. 'Phase separations of mRNPs into cytosolic granules and combinatorial control of translation during early development'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

10/9/2015 International symposium on the hallmarks of cancer: focus on RNA, Institut Curie, Paris, France, October 9-10. ' Modifiers of RNP dynamics control mRNA activity and germ cell cycle progression'. Hubstenberger, A., Cameron, C., Noble, S.L., Keenan, S., Weil, D., Evans, TC.

07/10/2016 Gordon Research Conference: Post Transcriptional gene regulations, Stowe, Vermont, USA, October 10-15. 'P-body condensation and the coordination of mRNA expression'. Hubstenberger, A., Courel, M., Kress, M., Ernoult-Lange, M., Benard, M., Pierron, G., Munier, A., Fradet, M., Mozziconacci, J., Weil, D.

02/07/2017 Keystone Symposia, Protein-RNA Interactions: Scale, Mechanisms, Structure and Function of Coding and Noncoding RNPs, Banff, Canada. 'P-Bodies Condense Coordinately Repressed mRNA Regulons'. Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi,Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D.

INVITED SEMINARS:

01/28/2014 Université d'Evry, Laboratoire structure-activité des biomolécules normales et pathologiques (UMRS 829), invited by David Pastré.

02/13/2014 Institut de Biologie de l'Ecole Normale Supérieure, Paris, invited by Hervé Le Hir.

05/30/2014 Université Pierre et Marie Curie, Laboratoire de Physique Théorique de la Matière Condensée, LPTMC, invited by Maria Barbi.

06/22/2014 Laboratoire de biologie du développement de Villefranche sur Mer, invited by Evelyn Houliston.

11/07/2014 Ecole Normale Supérieure de Cachan, Institut d'Alembert (IDA) - FR3242, invited by Eric Deprez.

11/20/2014 Retraite des doctorants et post doctorants de l'Institut de Biologie Paris Seine.

01/07/2015 University of Cambridge, UK, Department of Biochemisty, invited by Nancy Standart.

12/08/2015 Institut de Biologie Valrose, Nice, France, invited by Florence Besse.

04/21/2016 Laboratoire de biologie du développement de Villefranche sur Mer, invited by Evelyn Houliston.

04/22/2016 Institut de Biologie Valrose, Nice, France, invited by Stéphane Noselli.

05/19/2016 Ecole polytechnique, Palaisseau, France, invited by Marc Graille.

05/17/2017 IRCAN, Nice, invited by Patrick Brest.

09/11-12/2017 Max Planck Institute of Molecular Cell Biology & Genetics, Dresden, invited by Tony Hyman.

LOCAL SEMINARS/POSTERS:

05/09-10/2017 LABex signalife meeting, Nice, France. 'P-Bodies Condense Coordinately Repressed mRNA Regulons'. Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi,Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D.

06/08-09/2017 iBV days, Nice, France. 'RNP phase transitions and the coordination of mRNA expression. Hubstenberger, A.

09/08/2017 Nice-Seq, Villefranche sur Mer, France. 'P-body purification reveals how repressed mRNA regulons condense" . Hubstenberger, A., Courel, M., Bénard, M., Souquère, S., Ernoult-Lange, M., Chouaib, R., Yi,Z., Morlot, J.B., Munier, A., Fradet, M., Coulpier, F., Bertrand, E., Pierron, G., Mozziconacci, J., Kress, M., Weil, D.

05/28/2018 Genomics, Statistics and learning day, Nice, France. 'The multiscale and multiphase organization of the transcriptome and the adaptive coordination of RNA expression". Hubstenberger, A.

06/21/2018 Modelife, « Modelisation, Physique et Mathematiques du vivant » Nice, France. 'multiscale and multiphase organization of the genetic information". Hubstenberger, A.