

Alessandro FANTIN



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Scopus ID:
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ResearcherID:
R-4601-2017.

Google Scholar ID:
https://scholar.google.co.uk/citations?user=Ex_RtncAAA&hl=en

EDUCATION and EMPLOYMENT:

Since 2019: visiting scientist at the Department of Experimental Oncology, European Institute of Oncology (IEO), Milan, Italy.

Since 2018: tenure-track Assistant Professor (ricercatore a tempo determinato tipo b; Settore scientifico-disciplinare: BIO/09 – Fisiologia) at the Dept of Biosciences, University of Milan, Italy.

2018: University of Cambridge Training - Introduction to RNA-seq data analysis. Cambridge, UK.

2016-2018: MRC funded **Postdoctoral research associate** in Prof Christiana Ruhrberg's lab, UCL Institute of Ophthalmology, University College of London, UK. Research project: *Defining the role of neuropilin 1 (NRP1) in vascular permeability.*

2016-2012: Wellcome Trust funded **Postdoctoral research associate** in Prof Christiana Ruhrberg's lab, UCL Institute of Ophthalmology, University College of London, UK. Research project: *Defining signalling pathways that control neurovascular interactions in brain and retina.*

2013: EMBL Advanced Course on Development of Transgenic Animal Models Using Zinc Finger Nucleases. EMBL Heidelberg, Germany.

2012-2011: British Heart Foundation funded **Postdoctoral research associate** in Prof Christiana Ruhrberg's lab, UCL Institute of Ophthalmology, University College of London, UK. Research project: *Novel roles for NRP1 in physiological tissue vascularisation.*

2011-2007: British Heart Foundation funded **PhD** in Cell and Developmental Biology in Prof Christiana Ruhrberg's lab, UCL Institute of Ophthalmology, University College of London, UK. Thesis: *Novel mechanisms in angiogenesis and vascular permeability.*

2007-2006: Postgraduate fellowship in Dr Maria Grazia De Simoni's lab, Mario Negri Institute for Pharmacological Research, Milan, Italy. Research project: *Characterization of ischemia-reperfusion injury and neuroprotective strategies using in vivo and in vitro models of cerebral ischemia.*

2006: MSc in Industrial Biotechnology, specialisation in Pharmacogenomics; University of Milano-Bicocca, Milan; internship in Dr Maria Grazia De Simoni's lab, Mario Negri Institute for Pharmacological Research, Milan, Italy. Thesis: *Plasma derived C1 inhibitor and human recombinant C1 inhibitor: different efficacy in models of cerebral ischemia.*

2004: BSc in Biotechnology, specialisation in Medical Biotechnology; University of Milano-Bicocca, Milan; internship in Dr Gabriella Nicolini's lab, Department of Neuroscience and Biomedical Technologies (DNTB), Monza, Italy. Thesis: *Retinoic acid induces neuronal differentiation through Mitogen Activated Protein Kinase (MAPK) activation.*

AREAS of RESEARCH (RESEARCH FUNDS):

2018: Cariplo Foundation grant "Ricerca biomedica condotta da giovani ricercatori": *Defining the molecular and cellular mechanisms by which tissue macrophages promote angiogenesis in neovascular diseases* (€209,550,00).

2018: British Heart Foundation project grant (Co-Applicant): *A novel progenitor for blood vessel growth* (£260,465.00).

NATIONAL SCIENTIFIC ABILITATION (ABILITAZIONE SCIENTIFICA NAZIONALE):

2018: SETTORE CONCURSALE 05/D1 FISILOGIA, Fascia: II.

2018: SETTORE CONCURSALE 05/F1 BIOLOGIA APPLICATA, Fascia: II.

2017: SETTORE CONCURSALE 05/E1 BIOCHIMICA GENERALE, Fascia: II.

2017: SETTORE CONCURSALE 05/H2 ISTOLOGIA, Fascia: II.

2017: SETTORE CONCURSALE 06/A2 PATOLOGIA GENERALE E PATOLOGIA CLINICA, Fascia: II.

PUBLICATIONS: total citations: 1243; h-index: 15 (Scopus).

RESEARCH ARTICLES: **19** (9 as first author & 1 as corresponding author):

Plein A, Fantin A*, Denti L, Pollard JW, Ruhrberg C. *Erythro-myeloid progenitors contribute endothelial cells to blood vessels.* **Nature.** 2018 Oct;562(7726):223-228.

Howard SR, Oleari R, Poliandri A, Chantzara V, Fantin A, Ruiz-Babot G, Metherell LA, Cabrera CP, Barnes MR, Wehkamp K, Guasti L, Ruhrberg C, Cariboni A, Dunkel L. *HS6ST1 insufficiency causes self-limited delayed puberty in contrast with other GnRH deficiency genes.* **J Clin Endocrinol Metab.** 2018 Jun 20. Epub.



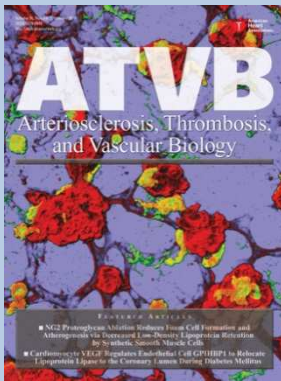
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BHF PhD scheme at
University College of
London, UK.

* co-first author

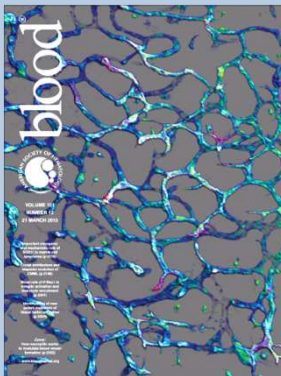
§ corresponding author

Faculty of 1000 recommended

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cover art,
ATVB. 2016 Jan;36(1).



cover art,
Blood. 2013 Mar;121(12).



cover art,
Blood. 2010 Aug;116(5).

Fantin A [§], Lampropoulou A, Senatore V, Brash JT, Prahst C, Lange C, Liyanage SE, Raimondi C, Bainbridge J, Augustin HG, Ruhrberg C. *VEGF165-induced vascular permeability requires NRP1 for ABL-mediated SRC family kinase activation.* **J Exp Med.** Apr 3;214(4):1049-1064.

Tillo M, Charoy C, Schwarz Q, Maden CH, Davidson K, Fantin A, Ruhrberg C. *2- and 6-O-sulfated proteoglycans have distinct and complementary roles in cranial axon guidance and motor neuron migration.* **Development.** 2016 Jun 1;143(11):1907-13.

Raimondi C, Calleja V, Ferro R, Fantin A, Riley AM, Potter BV, Brennan CH, Maffucci T, Larijani B, Falasca M. *A Small Molecule Inhibitor of PDK1/PLCy1 Interaction Blocks Breast and Melanoma Cancer Cell Invasion.* **Sci Rep.** 2016 May 20;6:26142.

Roth L, Prahst C, Ruckdeschel T, Savant S, Weström S, Fantin A, Riedel M, Héroult M, Ruhrberg C, Augustin HG. *Neuropilin-1 mediates vascular permeability independently of vascular endothelial growth factor receptor-2 activation.* **Sci Signal.** 2016 Apr 26;9(425):ra42.

Liyanage SE, Fantin A*, Villacampa P, Lange CA, Denti L, Cristante E, Smith AJ, Ali RR, Luhmann UF, Bainbridge JW, Ruhrberg C. *Myeloid-Derived Vascular Endothelial Growth Factor and Hypoxia-Inducible Factor Are Dispensable for Ocular Neovascularization.* **ATVB.** 2016 Jan;36(1):19-24.

Plein A, Calmont A, Fantin A, Denti L, Anderson N, Scambler P, Ruhrberg C. *Neural crest-derived SEMA3C activates NRP1 to enable the endothelial-to-mesenchymal transition that is essential for cardiac outflow tract septation.* **J Clin Invest.** 2015 Jul 1;125(7):2661-76.

Fantin A, Lampropoulou A, Gestri G, Raimondi C, Senatore V, Zachary I, Ruhrberg C. *NRP1 Regulates CDC42 Activation to Promote Filopodia Formation in Endothelial Tip Cells.* **Cell Reports.** 2015 Jun 16;11(10):1577-90.

Cariboni A, André V, Chauvet S, Cassatella D, Davidson D, Caramello A, Fantin A, Bouloux P, Mann F, Ruhrberg C. *Dysfunctional semaphorin 3E signaling underlies gonadotropin-releasing hormone neuron deficiency in Kallmann syndrome.* **J Clin Invest.** 2015 Jun 1;125(6):2413-28.

Tillo M, Erskine L, Cariboni A, Fantin A, Joyce A, Denti L, Ruhrberg C. *VEGF189 binds NRP1 and is sufficient for VEGF/NRP1-dependent neuronal patterning in the developing brain.* **Development.** 2015 Jan 15;142(2):314-9.

Raimondi C, Fantin A*, Lampropoulou A, Denti L, Chikh A, Ruhrberg C. *Imatinib inhibits VEGF-independent angiogenesis by targeting neuropilin 1 dependent ABL1 activation in endothelial cells.* **J Exp Med.** 2014 Jun 2;211(6):1167-83.

Fantin A, Herzog B, Mahmoud M, Yamaji M, Denti L, Ruhrberg C, Zachary I. *Neuropilin (NRP) 1 hypomorphism combined with defective VEGF-A binding reveals novel roles for NRP1 in developmental and pathological angiogenesis.* **Development.** 2014 Feb;141(3):556-62.

Seerapu HR, Borthakur S, Kong N, Agrawal S, Drazba J, Vasanji A, Fantin A, Ruhrberg C, Buck M, Horowitz A. *The cytoplasmic domain of neuropilin-1 regulates focal adhesion turnover.* **FEBS Lett.** 2013 Nov 1;587(21):3392-9.

Lanahan A, Zhang X, Fantin A, Zhuang Z, Rivera-Molina F, Speichinger K, Prahst C, Zhang J, Wang Y, Davis G, Toomre D, Ruhrberg C, Simons M. *The Neuropilin-1 cytoplasmic domain is required for VEGF-A-dependent arteriogenesis.* **Developmental Cell.** 2013 Apr 29;25(2):156-68.

Fantin A, Vieira JM, Plein A, Denti L, Fruttiger M, Pollard J, Ruhrberg C. *NRP1 acts cell autonomously in endothelium to promote tip cell function during sprouting angiogenesis.* **Blood.** 2013 Mar;121(12):2352-62.

Fantin A, Schwarz Q, Davidson K, Normando EM, Denti L, Ruhrberg C. *The cytoplasmic domain of neuropilin 1 is dispensable for angiogenesis, but promotes the spatial separation of retinal arteries and veins.* **Development.** 2011 Oct;138(19):4185-91.

Fantin A, Vieira JM, Gestri G, Denti L, Schwarz Q, Prykhodzhiy S, Peri F, Wilson SW, Ruhrberg C. *Tissue macrophages act as cellular chaperones for vascular anastomosis downstream of VEGF-mediated endothelial tip cell induction.* **Blood.** 2010 Aug;116(5):829-40.

➤ News & Views: *Bridges that guide and unite.* **Nature.** 2010 Aug; 465:697-699.

Gesuele R, Storini C, Fantin A, Stravalaci M, Zanier ER, Orsini F, Vietsch H, Mannesse ML, Ziere B, Gobbi M, De Simoni MG. *Recombinant C1 inhibitor in brain ischemic injury.* **Ann Neurol.** 2009 Sep;66(3):332-42.

REVIEWS/PROTOCOLS/BOOK CHAPTERS: **11** (4 as first & **3** as corresponding author):

Brash JT, Ruhrberg C, Fantin A^{\$}. *Evaluating Vascular Hyperpermeability-Inducing Agents in the Skin with the Miles Assay*. **JoVE**. 2018. Epub.

Raimondi C, Brash JT, Fantin A, Ruhrberg C. *NRP1 function and targeting in neurovascular development and eye disease*. **Prog Retin Eye Res**. 2016 May;52:64-83.

Fantin A^{\$}, Ruhrberg C. *The embryonic mouse hindbrain and postnatal retina as in vivo models to study angiogenesis*. VEGF Signalling: Methods and Protocols (book chapter). **Methods Mol Biol**. 2015;1332:177-88.

Tata M, Ruhrberg C, Fantin A^{\$}. *Vascularisation of the central nervous system*. **Mech Dev**. 2015 Nov;138 Pt 1:26-36.

Raimondi C, Fantin A, Ruhrberg C. *Imatinib may be ABL to improve anti-angiogenic therapy*. **Molecular & Cellular Oncology**. 2015 Jan;2(1).

Plein A, Fantin A, Ruhrberg C. *Neural crest cells in cardiovascular development*. **Curr Top Dev Biol**. 2015 Jan;111:183-200.

Plein A, Ruhrberg C, Fantin A. *The mouse hindbrain: an in vivo model to analyze developmental angiogenesis*. **Methods Mol Biol**. 2015 Jan;1214:29-40.

Plein A, Fantin A, Ruhrberg C. *Neuropilin regulation of angiogenesis, arteriogenesis and vascular permeability*. **Microcirculation**. 2014 May;21(4):315-23.

Fantin A, Vieira JM, Plein A, Maden CH, Ruhrberg C. *The embryonic mouse hindbrain as a qualitative and quantitative model to study the molecular and cellular mechanisms of angiogenesis*. **Nature Protocols**. 2013 Jan;8(2):418-429.

Fantin A, Plein A, Ruhrberg C. *Neuropilin Signalling in Vascular Development and Pathology*. **Current Angiogenesis**. 2012 June;1(2):125-132.

Fantin A, Maden CH, Ruhrberg C. *Neuropilin ligands in vascular and neuronal patterning*. **Biochem Soc Trans**. 2009 Dec;37(Pt 6):1228-32.

COMMISSIONS OF TRUST:

2018: PhD Reviewer/Examiner for the University of Helsinki, Finland.

Since 2016: contributing Associate Faculty Member of the Faculty of 1000.

Since 2014: peer review for journals such as JoVE, Development, Plos One, Ophthalmologica, Clinical Science.

2014: Reviewer for the United Arab Emirates University (UAEU) advanced research grant program.

Since 2013: assisting peer review for Prof Ruhrberg and Prof Greenwood (Nature, Cell Metabolism, Vascular Cell, JCI, JEM, Blood).

TEACHING AND SUPERVISION:

Since 2018: teacher at the practical course *Animal Physiology* for the BSc in Biological Sciences and at the theoretical course *Functional and Structural Bases of Nutrition* for the MSc in Biology Applied to Nutritional Sciences at University of Milan, Italy.

2018-2015: *Signalling in vascular & neural development*. Invited lecture for the "Microvascular biology" module of the Cardiovascular Science MSc and Biology of Vision MSc at UCL, UK.

2018-2012: *An introduction to Molecular Biology*. 4-day Physiological Society workshop at UCL/Birkbeck University, UK.

2016: *In vivo models of angiogenesis and Cre-Lox strategies*. Invited talk for the Athena Swan "Engage: Skills Share" networking lunch at UCL, UK.

2015-2014: *Development of the cardiovascular system*. Invited lecture for the "Biology of Development and Differentiation" module of the MSc in Pharmaceutical Biotechnology at University of Milan, Italy.

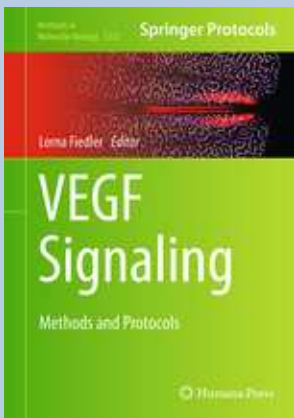
2015: *Basic concepts of blood vessel growth*. Invited lecture for the Basic Science Summer School sponsored by the European Society of Cardiology, Sophia-Antipolis, France.

2010: supervision of Prof Lloyd G. Cantley from Yale University during his sabbatical in Prof Ruhrberg's lab to study kidney development in macrophage mutant mice.

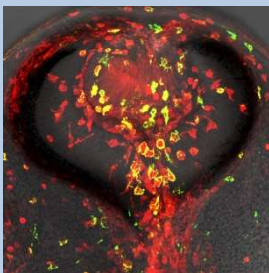
2018-2009: supervision and training of MSc and PhD students in Prof Ruhrberg's lab.

PATENT APPLICATION:

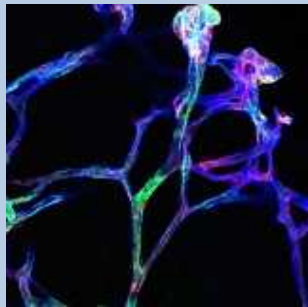
2014: Use of Imatinib and other ABL inhibitors to treat ocular neovascularisation (U.S. (2016): 15/113,242; International (2015): PCT/GB2015/050114; Great Britain (2014): 1401005.2).



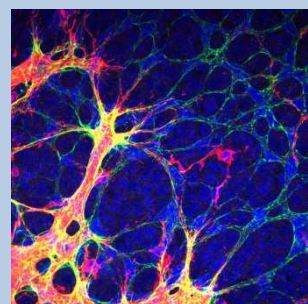
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2015;1332:177-88.



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London, UK.



cover art,
Biochemical Society
meeting 2014, Chester, UK.



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UCL Consulting leaflet,
University College of
London, UK.

INVITED TALKS:

- 2018:** *Novel insights into the role of VEGF and NRP1 in ocular neoangiogenesis.* ISEF 2018 XXIII Biennial Meeting of the International Society for Eye Research. Belfast, Northern Ireland, UK.
- 2018:** *Molecular and cellular control of vascular patterning in development and disease.* University of Padoa, Italy.
- 2017:** *Novel roles for myeloid cells in brain angiogenesis.* Mini Glia symposium, UCL, London, UK.
- 2017:** *Molecular and cellular control of vascular patterning in development and disease.* Mario Negri Institute for Pharmacological Research, Milan, Italy.
- 2017:** *Novel mechanisms in CNS vascularisation.* National Congress of the Italian Neuroscience Society, Ischia, Italy.
- 2017:** *Molecular and cellular control of vascular patterning and function.* The FIRC Institute of Molecular Oncology - European Institute of Oncology (IFOM-IEO), Milan, Italy.
- 2017:** *Molecular and cellular control of vascular patterning and function.* San Raffaele Scientific Institute, Milan, Italy.
- 2016:** *Novel insights into the molecular and cellular control of vascular function.* University of Milan, Italy.
- 2014:** *Novel roles for neuropilin (NRP) 1 in angiogenesis.* Keio University, Tokyo, Japan.
- 2010:** *The role of macrophages in physiological angiogenesis.* 28th London Vascular Biology Forum, Imperial College London, UK.

SELECTED TALKS AT CONFERENCES:

- 2018:** *Erythro-myeloid progenitors contribute endothelial cells to developing vasculature.* The 20th International Vascular Biology Meeting (IVBM), Helsinki, Finland.
- 2018:** *Erythro-myeloid progenitors contribute endothelial cells to developing vasculature.* MyDev, Milan, Italy.
- 2017:** *VEGF165-induced vascular permeability requires NRP1 for ABL-mediated SRC family kinase activation.* European Society for Microcirculation (ESM) - EVBO Joint Meeting, Geneva, Switzerland.
- 2014:** *Novel roles for neuropilin (NRP) 1 in angiogenesis.* The 18th International Vascular Biology Meeting (IVBM), Kyoto, Japan.
- 2012:** *Neuropilin regulation of VEGF-induced vascular permeability.* 2nd UK & Ireland Early Career Blood-Brain Barrier Symposium, Liverpool, UK.
- 2012:** *Neuropilin 1 signalling in the vasculature: "Novel Mechanisms in Angiogenesis".* London Heart Development Meeting, UCL Institute of Child Health (ICH), London, UK.
- 2012:** *Novel mechanisms in vascular permeability.* Experimental Biology (EB), San Diego, USA. Abstract published in FASEB J March 29, 2012 26:79.2.
- 2012:** *NRP1 signalling in brain and retinal vascular development.* 24th HEAD GROUP MEETING, UCL ICH, London, UK.
- 2011:** *The cytoplasmic domain of neuropilin 1 is dispensable for angiogenesis, but imposes spatial separation of retinal arteries and veins.* ESM - German Society of Microcirculation and Vascular Biology (GfMVB) Joint Meeting, Munich, Germany. Abstract published in J Vasc Res 2011;48(Suppl.1):341.
- 2010:** *Tissue macrophages act as cellular chaperones for vascular anastomosis downstream of VEGF-mediated endothelial tip cell induction.* NAVBO Developmental Vascular Biology Workshop IV, USA.
- 2010:** *Tissue macrophages act as cellular chaperones for vascular anastomosis in the developing brain.* 22nd HEAD GROUP MEETING, UCL ICH, London, UK.

TRAVEL AWARDS & PRIZES:

- 2018, 2014 & 2010:** North American Vascular Biology Organisation (NAVBO) Travel Awards.
- 2017, 2014, 2011 & 2009:** BSDB/Company of Biologists TRAVEL GRANTS.
- 2017 & 2014:** European Vascular Biology Organisation (EVBO) Travel Awards.
- 2013:** Prize for best poster at Innovations in Cardiovascular Science Symposium, UCL ICH, London, UK.
- 2013:** Boehringer Ingelheim Fonds Travel Grant for EMBL Advanced Course, Heidelberg, Germany.
- 2013, 2012 & 2009:** Prizes for best poster at the London Vascular Biology Forum, UK.
- 2012:** Postdoctoral Travel Grant awarded by the London Vascular Biology Forum, UK.
- 2011 & 2010:** UCL Graduate School Staff Conference Funds.

ORGANISATION OF SCIENTIFIC MEETINGS:

- 2019:** Member of the organising committee – 2nd MyDev meeting. Milan, Italy
- 2018:** Member of the organising committee – 30th Head Group Meeting. UCL, UK.
- 2016:** Member of the organising committee – Annual UCL Symposium on Cardiovascular Science. University College London, UK.

SOCIETY MEMBERSHIPS:

- From 2017:** Italian Society of Neuroscience (SINS).
- From 2014:** European Vascular Biology Organisation (EVBO).
- From 2010:** North American Vascular Biology Organisation (NAVBO).
- From 2009:** British Society for Developmental Biology (BSDB).

REFEREES

Available on request.