

# Hassan Fazilaty, Ph.D.



## CURRICULUM VIAE



### Personal Information

- Date of Birth: July 6<sup>th</sup>, 1988
- Place of Birth: Rasht, Guilan, Iran
- Marital Status: Married, No children
- Language Fluency: Persian (Native), English (Fluent), Spanish (pre-intermediate)

### Contact Information

- Mailing address: Institute of Molecular Life Sciences, University of Zurich, Winterthurerstrasse 190 8057 Zürich, Switzerland (building-room: Y55-L70)
- Email: [hassan.fazilaty@uzh.ch](mailto:hassan.fazilaty@uzh.ch)
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### Academic background

- **07.08.2019-present**, Postdoctoral fellow, Lab of *Professor Konrad Basler*, Institute of Molecular Life Sciences, University of Zurich, Zürich, Switzerland
- **13.10.2015-23.04.2019**, Doctor of Philosophy (Ph.D.) in **Molecular Biosciences**, School of Medicine, Universidad Autonoma de Madrid (UAM), Madrid, Spain
  - Supervisor: *Professor M. Angela Nieto* (CSIC-UMH), Tutor: *Professor Amparo Cano* (UAM)
  - Thesis: A Gene Regulatory Network to Control EMT Programs in Development and Disease
- **23.09.2011-19.08.2014**, Master of Science (M.Sc.) in **Human Genetics**, Department of Medical Genetics, Tehran University of Medical Sciences (TUMS)
  - Supervisor: *Dr. Babak Behnam*
  - Master's project: Crosstalk between breast cancer stem cell factors and metastatic niche
- **23.09.2006-17.09.2011**, Bachelor of Science (B.Sc.), **Cell and Molecular Biology-Microbiology**, Department of Microbiology, Azad University, Qom, Iran

### Fellowships/grants

- **01.09.2014-31.08.2017**, 3 years fellowship award, Santiago Grisolia (GRISOLIA / 2014/004) Resolution of 3 June 2014, Generalitat Valenciana, Alicante, Spain
- **04.08.2013**, Grant # 92003378 from Iran National Science Foundation (INSF) to Dr. Babak Behnam and Hassan Fazilaty, Project title: "*SLUG and SOX9 transcription factors regulate TNC and POSTN extracellular matrix proteins, and link cancer stem cells and metastatic niche in breast cancer*"

### Research Experience

- **01.09.2014-31.07.2019**, Research scholar, Instituto de Neurociencias CSIC-UMH, San Juan de Alicante, Spain
- **01.05.2013-22.08.2014**, Clinical Genetics research scholar, Genetic unit, eye research center, Rasoul Akram Medical Complex, Tehran, Iran
- **01.01.2013-31.07.2014**, Research scholar, National Institute of Genetic Engineering and Biotechnology (NIGEB), Tehran, Iran

## Articles in peer-reviewed journals

1. **Fazilaty H**, Rago L, Youssef KK, Ocana OH, Garcia-Asencio F, Arcas A, Galceran J, Nieto MA. *A Gene Regulatory Network to Control EMT Programs in Development and Disease. (In revision)*
2. Rago L, Castroviejo N, **Fazilaty H**, Garcia-Asencio F, Ocana OH, Galceran J, Nieto MA. *MicroRNAs establish the right-handed dominance of the heart laterality pathway in vertebrates. **Developmental Cell (accepted-in press)***
3. Kazemi N, Estiar MA, **Fazilaty H**, Sakhinia E. *Variants in GNPTAB, GNPTG and NAGPA genes are associated with stutterers. **Gene**. 2018 Mar 20; 647:93-100. doi: 10.1016/j.gene.2017.12.054*
4. Estiar MA, Zare AA, Esmaeili R, Farahmand L, **Fazilaty H**, Jafari D, Samadi T, Majidzadeh-A K. *Clinical significance of NDRG3 in patients with breast cancer. **Future Oncol**. 2017 May;13(11):961-969. doi: 10.2217/fo-2016-0457*
5. Estiar MA, Esmaeili R, Zare AA, Farahmand L, **Fazilaty H**, Zekri A, Jafarbeik-Iravani N, Majidzadeh-A K. *High expression of CEACAM19, a new member of carcinoembryonic antigen gene family, in patients with breast cancer. **Clin Exp Med**. 2016 Dec 1. [Epub ahead of print]*
6. Shakiba M, Mahjoub F, **Fazilaty H**, Rezagholizadeh F, Shakiba A, Ziadlou M, Gahl WA, Behnam B. *Adenosine kinase deficiency with neurodevelopmental delay and recurrent hepatic dysfunction: A case report. **Adv Rare Dis** 2016, 3:2. doi:10.12715/ard.2014.3.2*
7. Soheilipour F, **Fazilaty H**, Jesmi F, Gahl WA, Behnam B. *First report of inherited thyroxine-binding globulin deficiency in Iran caused by a known de novo mutation in SERPINA7. **Mol Genet Metab Rep**. June 2016 doi:10.1016/j.ymgmr.2016.06.001*
8. **Fazilaty H**, Gardaneh M, Akbari P, Zekri A, Behnam B. *SLUG and SOX9 cooperatively regulate metastatic niche factors in breast cancer. **Cancer Microenvironment**. 2015 September doi: 10.1007/s12307-015-0176-8*
9. Behnam B, Mobahat M, **Fazilaty H**, Wolfe J, Omran H. *Tsga10 is a centrosomal protein, interacts with Odf2 and localizes to basal body. **J Cell Sci Ther** 2015 6: 217. doi:10.4172/2177-7013.1000217*
10. Hooman N, Otukesh H, **Fazilaty H**, Torktaz I, Hosseini R, Behnam B. *A novel mutation pattern of kidney anion exchanger 1 gene in patients with distal renal tubular acidosis in iran. **Iran J Kidney Dis**. 2015 May;9(3):230-8*
11. Estiar MA, **Fazilaty H**, Aslanabadi S, Seifi M, Varghaei P, Rezamand A. *MYCN gene amplification in patients with neuroblastic tumors. **Cell Mol Biol (Noisy-le-grand)**. 2014 Sep 16;60(3):23-8*
12. **Fazilaty H**, Behnam B. *The perivascular niche governs an autoregulatory network to support breast cancer metastasis. **Cell Biology International**. 2014 Jun;38(6):691-4. doi: 10.1002/cbin.10261. Epub 2014 Feb 24*
13. **Fazilaty H**, Mehdipour P. *Genetics of breast cancer bone metastasis; a sequential multistep pattern. **Clinical & Experimental Metastasis**. 2014 Jun;31(5):595-612. doi: 10.1007/s10585-014-9642-9. Epub 2014 Feb 4*
14. **Fazilaty H**, Behnam B. *Molecular Genetics of Bartter Syndrome. **J Ped. Nephrology** 2014 Jan;1(3):92-100*
15. **Fazilaty H**, Gardaneh M, Bahrami T, Salmaninejad A, and Behnam B. *Crosstalk between breast cancer stem cells and metastatic niche: emerging molecular metastasis pathway? **Tumor Biology** 2013 Aug; 34(4):2019-30. doi: 10.1007/s13277-013-0831-y. Epub 2013 May 19*
16. Noori-Dalooi MR, **Fazilaty H**, Tabrizi M. *Cancer metastasis, genetic and microenvironmental factors of distant tissue: a review article. **Tehran University Medical Journal** 2013; 70 (11): 671-683. (article in Persian)*

## Books chapters

1. Behnam B, **Fazilaty H**, Roghanian A, **The Importance of Circulating Tumor Cells and Tumor Models in Future of Cancer Therapy** (book title: *Ex Vivo Engineering of the Tumor Microenvironment*, pp.121-135, Editors Aref. A. and Barbie D. (eds.)). Springer International Publishing Switzerland 2017, DOI 10.1007/978-3-319-45397-2\_7
2. **Fazilaty H**, Mehdipour P. **Retinic Acid Receptor-beta, from gene to clinic.** (In book: *Epigenetics Territory and Cancer*, pp.363-372, Editor Parvin Mehdipour). Springer Science+Business Media Dordrecht 2015. DOI 10.1007/978-94-017-9639-2\_12

## Abstracts

1. **Fazilaty H**, Rago L, Youssef KK, Arcas A, Ocaña OH, Garcia-Asencio F, Nieto MA. *miR-15* family coordinates EMT transcription factor switch in development and disease. Joint Meeting of the Portuguese, Spanish and French Societies for Developmental Biology (SPBD/SEBD/SFBD) 2018, November 07-10<sup>th</sup>, Porto, Portugal. (**Winner of the best communication prize**).
2. Youssef KK, **Fazilaty H**, Abad D, Vega S, Nieto MA. Decoding the partial Epithelial to Mesenchymal (EMT) program. Joint Meeting of the Portuguese, Spanish and French Societies for Developmental Biology (SPBD/SEBD/SFBD) 2018, November 07-10<sup>th</sup>, Porto, Portugal. (**Winner of the best poster prize, Youssef KK**).
3. **Fazilaty H**, Rago L, Youssef KK, Arcas A, Ocaña OH, Cheah KSE, Nieto MA. *miR-15* Family Members as Regulators of the EMT Mode. Mini-symposium, Cell Plasticity in Development and Disease, 02-03 May 2018, Instituto de Neurociencias de Alicante, Alicante, Spain
4. Youssef KK, **Fazilaty H**, Abad D, Vega S, Nieto MA. Controlling the partial EMT program in models of organ fibrosis. SEBD/SEBC/SEG Joint Congress 2017, October 24-27<sup>th</sup>, Gijon, Spain
5. Youssef KK, **Fazilaty H**, Abad D, Nieto MA. Epithelial polarity changes during EMT in models of organ fibrosis. EMBO Conference: Cell polarity and membrane dynamics, 4 – 9 June 2017, San Feliu de Guixols, Spain
6. **Fazilaty H**, Rago L, Arcas A, Ocaña OH, Nieto MA. EMT-TFs crosstalk through the miR16 family. ISREC-SCCL Symposium 2016: Horizons of Cancer Biology and Therapy, 07-10 September 2016, Lausanne, Switzerland
7. **Fazilaty H**, Rago L, Arcas A, Ocaña OH, Nieto MA. EMT-TFs crosstalk through the miR16 family. The Non-Coding Genome, 18-25 October 2015, EMBL Heidelberg, Germany
8. **Fazilaty H**, Rago L, Ocaña OH, Nieto MA. PRRX1 promotes TWIST expression by activating miR-16 family members. SPBD 3<sup>rd</sup> Meeting October 2015, Algarve, Portugal
9. Behnam B, **Fazilaty H**. SLUG and SOX9 Cooperatively Regulate Tumor Initiating Niche Factors in Breast Cancer. International Conference on Transcriptomics, July 27-29 2015, Orlando, Florida, USA
10. Behnam B, Hooman N, **Fazilaty H**. Bartter syndrome type II, a case and novel mutation report. ISPN Annual Meeting February 2015, Tehran, Iran
11. **Fazilaty H**, Behnam B: Breast cancer metastasis is governed by an autoregulatory network, emerging from crosstalk between master transcription factors and niche elements that robust stemness. 10<sup>th</sup> National Cancer Research Institute (NCRI) Cancer Conference 2-5 November 2014, Liverpool, UK
12. Hooman N, Otukesh H, Torktaz I, **Fazilaty H**, Hosseini R, Behnam B. The 47th ESPN Congress in Porto, Portugal, September 18-20, 2014. Kidney Anion Exchanger 1 (kae1) Alteration in Some Iranian Children with Distal Renal Tubular Acidosis Referred. Pediatric Nephrology, 2014 29 (2) 1833-1833
13. **Fazilaty H**, Behnam B: A Non-Smad TGF-Beta Signaling Pathway Govern Adult Stem Cell State With The Cooperation Of Slug And Sox9, TEMTIA 2013 The 6<sup>th</sup> International EMT Meeting, November 13-16, Alicante, Spain
14. **Fazilaty H**, Behnam B: A Non-Smad TGF- Signaling Pathway Govern Adult Stem Cell State and Breast Cancer Metastasis with the Cooperation of SLUG and SOX9. 63<sup>rd</sup> Annual Meeting of American Society of Human Genetics (ASHG), October 22-26, 2013, Boston, MA, USA
15. **Fazilaty H**, Behnam B: Non-Smad TGF- Signaling Pathway Govern Adult Stem Cell State with the Cooperation of SLUG and SOX9. 9<sup>th</sup> Congress on Stem Cell Biology & Technology, Royan International Twin Congress, September 4-6 2013, Tehran, Iran
16. **Fazilaty H**, Behnam B: Cross-talk between Breast Cancer Stem Cells and Metastatic Niche, Emerging Molecular Metastasis Pathway? 3<sup>rd</sup> Congress of National Medical Genetics, May 15-16, 2013, Tehran, Iran
17. Behnam B, **Fazilaty H**: Cross-talk between Cancer Stem Cells and Metastatic Niche, Emerging Metastasis Pathway? 22<sup>nd</sup> Annual meeting of American College of Medical Genetics (ACMG), March 19-23, 2013, Phoenix, AZ, USA

## Scientific Metrics\*

- Total citations: 140
- H-index: 5
- i10-index: 4
- Total number of publications: 16, including 2 book chapters

\* *Google scholar*: <https://scholar.google.es/citations?user=66pyAKQAAAAJ&hl=en>

## Presentation/attendance at Meetings

- **2018**, Joint Meeting of the Portuguese, Spanish and French Societies for Developmental Biology (SPBD/SEBD/SFBD) 2018, November 07-10<sup>th</sup>, Porto, Portugal.
- **2018**, 1<sup>st</sup> ONCOBELL Symposium: Mechanisms of Cancer and New Therapeutic Strategies. 20-21 September 2018, Barcelona, Spain
- **2018**, Cell Plasticity in Development and Disease mini-symposium, 02-03 May 2018, Instituto de Neurociencias de Alicante, Alicante, Spain
- **2016**, ISREC-SCCL Symposium 2016: Horizons of Cancer Biology and Therapy, 07-10 September 2016, Lausanne, Switzerland
- **2015**, 3<sup>rd</sup> Meeting of the Portuguese Society for Developmental Biology, jointly with The Spanish Society for Developmental Biology and British Society for Developmental Biology 7-10 October 2015, Algarve, Portugal
- **2014**, 10<sup>th</sup> National Cancer Research Institute (NCRI) Cancer Conference 2-5 November, Liverpool, UK
- **2013**, 9<sup>th</sup> Congress on Stem Cell Biology & Technology, Royan International Twin Congress, September 4-6, Tehran, Iran
- **2013**, 3<sup>rd</sup> Congress of National Medical Genetics, May 15-16, Tehran, Iran
- **2013**, 5<sup>th</sup> International Congress of Laboratory and Clinic, January, Tehran, Iran

## Skills

- **Technical skills**
  - **Animal manipulation**
    - **Mouse:** handling, perfusion, injection, dissection of tumor, organs and embryos for RNA/miRNA *in situ* hybridization, immunofluorescent staining, FACS, RNA extraction, western blot
    - **Chicken:** culturing embryos ex-vivo, coated bead implantation, dissection of embryos for RNA/miRNA *in situ* hybridization, immunofluorescent staining and RNA extraction
    - **Zebrafish:** dissection of embryos for RNA *in situ* hybridization, immunofluorescent staining and RNA extraction
  - **Histology**
    - RNA/miRNA *in situ* hybridization, immunofluorescent staining, H&M and fast-red staining for human, mouse, chicken and zebrafish sections
      - Sectioning: Paraffin, OCT/frozen, gelatin and agarose-embedded
  - **Cellular biology**
    - Cell culture: HEK293, MDCK (NBL/II), panel of breast cancer cell lines Transfection, lentiviral infection, CRISPR/Cas9 gene knock-out
    - Immunofluorescent staining, western blot, RNA extraction
    - Fluorescence-activated cell sorting (FACS)
    - Microbiology: liquid and solid culture of bacteria, isolation and transformation
    - Microscopy: Light sheet, confocal, fluorescence and light microscopy
  - **Molecular Biology**
    - RNA/miRNA extraction, cDNA synthesis
    - PCR, RT-PCR, real-time q-RT-PCR (SYBR green and Taq-man)
    - Vector design: primers design, digestions, ligations, cloning
    - Cloning: transformation, RNA extraction, reverse transcription, mutagenesis, DNA purification (mini-, midi- and maxi-preps), DNA gel analysis, quantification and extraction
    - Chromatin Immunoprecipitation (ChIP)
    - Promoter and 3' UTR luciferase activity assay
  - **Bioinformatics**
    - Basic analysis skills of public databases, TCGA, GEO (microarray, single cell-/RNA-seq), Expression Atlas EMBL-EBI
    - Blasting DNA/RNA/protein sequences
    - Analyzing regulatory regions of the genes (promoter, 3'UTR...) for potential binding regions for proteins and miRNAs
  - **IT**
    - Extensive knowledge of standard office software, Photoshop, illustrator, GraphPad Prism, ImageJ, GENE-E, SnapGene, Lasergene and EndNote

- **Other skills**
  - Strong scientific writing skills; essay, book chapter, review and research articles
  - Strong teaching, communication and presentation skills

### Teaching Experience and miscellaneous works

- **01.06.2016-31.07.2019**, tutoring junior Master's and undergraduate students, Instituto de Neurociencias UMH-CSIC, Alicante, Spain
- **01.10.2014-01.02.2019**, Online English conversation tutoring, Alborz IELTS center, based in Karaj Iran
- **2011-2014**, Human Genetics, Cell and Molecular Biology to undergraduate and Master students, Tehran, Iran
- English Conversation Tutoring
  - **05.11.2011-12.09.2014**, 36<sup>®</sup> ACC Institute (Advanced Conversation Center)
  - **07.08.2011-09.10.2012**, Hekmat Institute of Foreign Language, Baghestan Street, Karaj, Iran
- **04.12.2012-15.02.2014**, Member of the executive committee, 5<sup>th</sup> and 6<sup>th</sup> International Congress of Laboratory and Clinic, Tehran, Iran

### Courses and certificates

- **EMBL-EBI Genomics and Bioinformatics workshop co-organized by Instituto de Neurociencias CSIC-UMH**. September 2017 San Juan de Alicante, Alicante, Spain
- **Experimental animal course, Category B, Edition VII**. 40 h, September 1<sup>st</sup> to 14<sup>th</sup> 2015, Universidad Miguel Hernandez de Elche, San Juan de Alicante, Alicante, Spain
- **TTC (Teacher Training Course)**, Hekmat Institute of Foreign Languages, November 2012, Karaj, Iran

### Membership

- **08.2018-Present**, Spanish Society of Developmental Biology (SEBD)
- **10.2014-05.2019**, The European Association for Cancer Research (EACR Ambassador)
- **07.2013-Present**, The EMT International Association (TEMTIA)

### Peer Review

- Peer Review panel member at *Spandidos Publications: Oncology Letters, Oncology Reports, Experimental and therapeutic medicine* etc. and in journals including *Breast Cancer Research & Treatment, (Springer), Tumor Biology, (Springer), Cell & Molecular Biology (Noisy-le-grand)*

### Honors and Awards

- Best Poster Prize, 5<sup>th</sup> Annual Retreat, Department of developmental Neurobiology, Instituto de Neurociencias de Alicante, 18-19 February 2019, Albir, Spain
- SODISPAN Research-SEBD Award-Accessit, Best Communication, Joint Meeting of the Portuguese, Spanish and French Societies for Developmental Biology (SPBD/SEBD/SFBD) 2018, November 07-10, Porto, Portugal
- European Association for Cancer research (EACR) Travel Award, 10<sup>th</sup> National Cancer Research Institute (NCRI) Cancer Conference 2-5 November 2014, Liverpool, UK
- First rank in 2011-2012 academic year entrance exam (Concour) among 2404 competitor students for the Master's degree of Human Genetics, Iran Ministry of Health and Medical Education
- Qualified as exceptional talented Master's student, Exceptional Talent Development Center (ETDC), Tehran University of Medical Sciences, Tehran, Iran

### Standardized tests

- **GRE**, taken in 09/11/2013. Verbal:142, Quantitative: 153, Writing:3
- **TOEFL iBT**, taken in 17/11/2013. Overall: 96; Reading: 24, Listening: 23, Speaking: 27, Writing: 22