

AMIR ALI KHAN

Nationality: British

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CURRENT POSITION

- 1st September 2016- To date** Head of the Department of Applied Biology
- 1st September 2013-To date** Assistant Professor at the Department of Applied Biology, University of Sharjah, UAE

EDUCATION AND QUALIFICATIONS

- 2004-2008** **PhD (Doctor of Philosophy) in Stem Cells Proteomics**
School of Membrane and System Biology, Faculty of Biological Sciences, University of Leeds (UK)
- Thesis title: Proteomics analysis of human stem cells
Supervised by Professor John B.C. Findlay
- 2001-2004** **BSc (honour) 2:1, Human Genetics**
University of Leeds (UK)
Undergraduate research project involved, Tissue, culture, stem Cells, Cell Biology, PCR, cloning and transformation.
- 1996-1998** **A-Levels: Biology (B), Physics (B) and Chemistry (B)**
Parklane College Leeds.
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RESEARCH INTERESTS

Undifferentiated growth of human embryonic stem cells, Mesenchymal stem cells differentiation and the roles of the microRNAs in the stem cells differentiation.

RESEARCH EXPERIENCE

- September 2015-To date** **Coordinator of research group "Human Genetics and Stem Cells". University of Sharjah**

1st September 2013-To date **Assistant Professor at the Department of Applied Biology, University of Sharjah, UAE**

25th April 2012-24th April 2013 **Post-doctoral research fellow in Stem cells Biology, Department of Neuroscience, University of Sains Malaysia**

- Maintaining the undifferentiated growth and their subsequent differentiation of mesenchymal and neural crest stem cells.
- Working on the transdifferentiation of rat mesenchymal stem cells into neural stem cells and analysing the roles of different growth factors and MicroRNA in the process.
- Working on the differentiation of mesenchymal stem cells into intervertebral disc lineages by co-culturing the mesenchymal stem cells with the neural crest stem cells in specific growth factors and micro-environment.
- **Main techniques used:** Tissue culture, flow cytometer, immunohistochemistry, RNA extraction, PCR, real time PCR, microarray, confocal microscopy and co-culturing of different stem cells to assess their differentiation, extraction of stem cells and foetus from the Sprang Dawly rats

Oct 2008-March 2009 **Post PhD work in Stem cell Biology in the School of Medicine University of Leeds (UK)**

- Undifferentiated Growth of H1 and Hues1 human embryonic stem cell lines for Helen Picton's group in school medicine at LIGHT building
- Differentiation of H1 and Hues1 into embryoid bodies

2004-2008 **PhD in Stem Cells Proteomics, University of Leeds, UK**

Main techniques and skills learnt during PhD project:

- Undifferentiated growth of human embryonic stem cell lines (H1 and Hues1) and their differentiation. Tissue culture and differentiation of Human embryonic stem cells and other mammalian cells. Flow cytometer, confocal microscopy and immunohistochemistry analysis of stem cells and their differentiated progenies.
- Also received training and experience in the growth and differentiation of pure mesenchymal stem cells and their differentiation into adipocytes.

- Mastered various proteomics techniques: extraction of proteins from stem cells, their separation by 2D-PAGE and sequentially staining with Pro-Q Diamond and Sypro Ruby; analysis of the 2-D gels by PD-Quest Software; Proteins identification by MALDI-TOF; validation of proteins biomarkers by western blotting.
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TEACHING EXPERIENCE

1st September 2013-To date Assistant Professor at the Department of Applied Biology, University of Sharjah, UAE

Courses taught/being taught:

Cell Biology (1450251)
 Molecular Developmental Biology (1450454)
 Selected Topics in Biotechnology A (145049A)
 Selected Topics in Biotechnology B (145049B)
 Seminar (1450491)
 Ethical Aspects of Biotechnology (1450496)
 Tissue Culture and hybridoma (1450361)
 Graduate Research Project (1450494)

1st September 2010 till 2nd April 2012 Assistant Professor in Stem Cells Biology, Quaid-i-Azam University, Islamabad, Pakistan

Courses taught:

To M.Sc: (1) Cell Biology and tissue culture (2) research techniques and instrumentation in Molecular Biology and Biochemistry.

To M.phil/PhD: (1) Advanced Protein Chemistry: proteomics (2) Human Stem Cells Biology, **the latter course was designed by me.**

Research supervision:

I supervised nine students for their M.Phil projects in Tissue culture, Cell Biology, Molecular genetics, Molecular Biology and Biochemistry.

2004-2008 Post graduate demonstrator, University of Leeds, UK.

Delivered practicals and tutorials (Biochemistry, Cell Biology and Molecular Genetics) to undergraduate Biological Sciences and Medical Students. Taught more

than 25 students during a session. Also helped module managers in marking the practicals scripts

AWARDS AND RESEARCH GRANTS

2004-2008 Medical research Council (UK) studentship for PhD in stem cells at University of Leeds.

2010-2011 Gained an initial grant from Higher Education Commission (HEC) in Pakistan to initiate the human embryonic stem cells research at Quaid-i-Azam University, Islamabad

2013-2015 Quantitative methylation of CG in the imprinting genes in the human mesenchymal stem cells at different passages, Seed grant (20,000 AED), University of Sharjah, UAE

July-August 2015

Visiting lecturer to department of Neurosciences, University of Sains Malaysia

October 2015

Ahmed T El-Serafi, Adel Almoseilhy, Farhan Cyprian and **Amir Khan**

Characterization of an in vitro Three Dimensional Cell Culture System for Adipogenesis as a Model for Anti-Obesity Drugs Testing. **Al Jalila Foundation, Dubai, UAE, 2015. AED 269,400.**

November 2016

Amir Ali Khan:

The role of mir-22 and the IGF-1 in the enhanced differentiation of very small embryonic-like stem cell (CD 133+) into neural progenitor-like cells in the presence of bFGF and EGF. **University of Sharjah, 80,000 AED**

POST GRADUATE RESEARCH SUPERVISION

1. Urooj Zahra (2011): Genetics analysis of upstream promoter of OCT4 in general population. M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan.
2. Rehman Khan (2011): Genetics analysis of upstream promoter of SOX2 in general population. M. phil thesis, Quaid-i-Azam University Islamabad, Pakistan.
3. Syda Anum Zahra (2012): Methylation analysis of upstream sequence of SOX2 gene in leukemia patients. M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan.
4. Mahira Arrooj (2012): NANOG gene expression and determination of epigenetic modification in the NANOG promoter in leukemia patients. M.Phil Thesis, M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan
5. Uzma Malik (2012): Genetics analysis of OCT4 gene expression and determination of epigenetic modification in the OCT4 promoter in leukemia patients. M.Phil Thesis, M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan
6. Humaira (2012): Analysis of SOX2 gene expression and determination of epigenetic modification in the Sox2 promoter in leukemia patients. M. Phil Thesis, M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan
7. Mehtab Khan (2012): Analysis of SOX2 gene promoter in Leukemia patients. M. Phil thesis, Quaid-i-Azam University Islamabad, Pakistan
8. Tee Hunt (in progress): Micro profile of differentiation of mesenchymal stem cells into neural lineage, M.Sc Thesis, Department of neurosciences, Universiti Sains Malaysia

PUBLICATIONS AND ON GOING WORK

1): Huntriss, J., Hinkins, M., **Khan, A.A.**, Picton, H.M. Microarray Analysis of Imprinted Gene Expression in Human Embryonic Stem Cells: Imprinted Genes as Biomarkers for Assessing Epigenetic

poster presentation at EuroEpiStem: European Epigenomics & Stem Cells-2009 Meeting. Conference presentation

2): Huntriss J, Woodfine K, Huddleston J, Murrell A, Rutherford A, Elder K, **Khan A.A**, Hemmings K, Picton H.M: Quantitative Analysis of DNA Methylation of Multiple Imprinted Genes in Single Human Blastocysts by Pyrosequencing. *Fertility and sterility*. Volume 95, Issue 8, 30 June 2011, Pages 2564-2567.

3): Syeda Anum Zahra. Syed Raheel Muzavir, Humaira Zafar, **Amir Ali Khan** and aftab Ahmad Khan: Stem cells therapy for spinal cord injury. *The health* 2012; 3 (1): 19-23.

4): **Tee Jong Huat,* Amir Ali Khan***, Soumya Pati, Zulkifli Mustafa, Jafri Malin Abdullah, Hasnan Jaafar: IGF-1 enhances early differentiation of Bone Marrow Mesenchymal Stem Cell into Neural lineage. *BMC Neuroscience*, *BMC Neurosci*. 2014 Jul 22;15(1):91. doi: 10.1186/1471-2202-15-91. * **Equal contributors. Impact**

5): Tee Jong Huat, **Amir Ali Khan**, Jafri Malin Abdullah, Fauziah Mohamad Idris and Hasnan Jaafar: MicroRNA expression profile of neural progenitor-like cells derived from mesenchymal stem cells under the influence of IGF-1, bFGF and EGF. *Stem cell research*. *Int. J. Mol. Sci*. 2015, 16(5), 9693-9718.

6): Tee Jong Huat, **Amir Ali Khan**, Jafri Malin Abdullah, Fauziah Mohamad Idris and Hasnan Jaafar: MicroRNA expression Profile of Bone Marrow Mesenchymal Stem Cells-derived Neural Progenitor Cells by microarray under the influence of EGF, bFGF and IGF-1. *Genomics Data*. Volume 5, September 2015, Pages 201–205.

7): **Amir Ali Khan**, Tee Jong Huat, Soumya Pati, Qaiser Iftikhar Sheikh, Jafri Malin Abdullah and Hasnan Jafar. Extraction of Neural Crest Stem (NCS) Cells from Bone Marrow and Developing Gut by Magnetic Cell Sorting: abstract, Middle East Molecular Biology Society congress, 2014

8): Tee Jong Huat, Amir Ali Khan, Jafri Malin Abdullah and Hasnan Jaafar.: MicroRNA-22 regulates proliferation and differentiation of BMSCs-derived NPCs under the influence of IGF-1. 6th MTERMS 2016 in conjunction with 2nd Malaysian Stem Cells Meeting 17-18th November 2016 Pulau Pinang, Malaysia

9): Amir Ali Khan, Tee Jong Huat, Abdullah Fahad Al Mutery, Malin Abdullah, Hasnan Jaafar. Unravelling the gene expression profiles of the early differentiation of mesenchymal stem cells into neural lineage: Oral presentation in Keystone conference on Engineered Cells and Tissues as Platforms for Discovery and Therapy (K1), March 9—12, 2017 in Boston, Massachusetts USA.

10): **Amir Ali Khan**, Tee Jong Huat, Abdullah Al Mutehery, Ahmed El-Serafi , Uzma Inayat, Jafri Malin Abdullah and Hassan Jaafar. The whole transcriptomics analysis of Rat Mesenchymal Stem Cells and Mesenchymal Stem Cells-derived Neural Progenitor-like Cells with the addition of bFGF and EGF. Manuscript in preparation

11): **Amir Ali Khan**, Tee Jong Huat, Abdullah Al Mutehery, Ahmed El-Serafi , Uzma Inayat, Jafri Malin Abdullah and Hassan Jaafar .The whole transcriptomics analysis of Rat Mesenchymal Stem Cells and Mesenchymal Stem Cells-derived Neural Progenitor-like Cells with the addition of IGF1, bFGF and EGF. Manuscript in preparation

COURSES AND COFERNCES ATTENDED

July 2005 Human Embryonic Stem Cells organised the University of Sheffield (UK).

June 2007 Presentation of a poster in Mesenchymal stem cells conference in June 2007, held by University of York (UK).

