

# Curriculum Vitae

## Amir Norouzy

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## Education

-**2010-2015** PhD in Biotechnology at Jacobs University Bremen, Germany

-**2004-2007** Master of Science in biochemistry at Babol University of medical sciences (MUBabol), Babol, Iran Total GPA: **17.0/20.0**.

-**1999-2003** Bachelor of Science in applied chemistry at Azad University Center of Tehran Branch (IAUCTB), college of basic sciences, Tehran, Iran Total GPA: **16.01/20.0**

## Publications

[1] A. Norouzy, A.I. Lazar, M.H. Karimi-Jafari, R. Firouzi, W.M. Nau, Electrostatically induced pKa shifts in oligopeptides: the upshot of neighboring side chains, *Amino Acids* (2022) 1-11.

[2] R. Khosravi, A. Norouzy, The Role of Pre-incubation in Formation of Supramolecular Complex Between Lucigenin and p-Sulfonatocalix [4] arene in Cell Culture Medium, *Cellular Molecular Research* (2022).

[3] M. Pourbaferani, S. Modiri, A. Norouzy, H. Maleki, M. Heidari, L. Alidoust, V. Derakhshan, H.S. Zahiri, K.A. Noghabi, A Newly Characterized Potentially Probiotic Strain, *Lactobacillus brevis* MK05, and the Toxicity Effects of its Secretory Proteins Against MCF-7 Breast Cancer Cells, *Probiotics and Antimicrobial Proteins* (2021).

[4] M. Shahabi, R. Hajhosseini, W.M. Nau, K.A. Noghabi, A. Norouzy, Augmenting Peptide Flexibility by Inserting Gamma-Aminobutyric Acid (GABA) in Their Sequence, *International Journal of Peptide Research and Therapeutics* (2020).

[5] M.D. Reihaneh Khosravi, Zahra Azizi, Mohammad Hosein Sanati, Maryam Mohaghegh, Amir Norouzy Improving Reaction Yields of Binding Amino Acids to Wang Resin and Peptide Labeling with (5/6)-Carboxyfluorescein, *Journal of Cellular and Molecular Researches* (2020).

- [6] M. Safaei, H. Maleki, H. Soleimanpour, A. Norouzy, H.S. Zahiri, H. Vali, K.A. Noghabi, Development of a novel method for the purification of C-phycoerythrin pigment from a local cyanobacterial strain *Limnospira* sp. NS01 and evaluation of its anticancer properties, *Scientific Reports* 9(1) (2019) 9474.
- [7] M. Shakibaie, F. Tabandeh, P. Shariati, A. Norouzy, Synthesis of a thin-layer gelatin nanofiber mat for cultivating retinal cell, *Journal of Bioactive and Compatible Polymers* 33(4) (2018) 371-381.
- [8] A. Norouzy, D. Qujeq, M. Habibi-Rezaei, Evaluation and Characterization of Free and Immobilized Acetylcholinesterase with Fluorescent Probe, Differential Scanning Calorimetry and Docking, *International Biological and Biomedical Journal* 1(3) (2015) 103-111.
- [9] **A. Norouzy**, Z. Azizi, W.M. Nau, Indicator displacement assays inside live cells, *Angewandte Chemie International Edition* 54(3) (2015) 792-795.
- [10] C.P. Carvalho, A. Norouzy, V. Ribeiro, W.M. Nau, U. Pischel, Cucurbiturils as supramolecular inhibitors of DNA restriction by type II endonucleases, *Organic & biomolecular chemistry* 13(10) (2015) 2866-2869.
- [11] A. Norouzy, W. Nau, Synthetic macrocyclic receptors as tools in drug delivery and drug discovery, *Drug Target Review* (2014).
- [12] A. Norouzy, K.I. Assaf, S. Zhang, M.H. Jacob, W.M. Nau, Coulomb Repulsion in Short Polypeptides, *The Journal of Physical Chemistry B* 119(1) (2014) 33-43.
- [13] N. Abdali, E. Barth, A. Norouzy, R. Schulz, W.M. Nau, U. Kleinekathöfer, A. Tauch, R. Benz, *Corynebacterium jeikeium* jk0268 constitutes for the 40 amino acid long PorACj, which forms a homooligomeric and anion-selective cell wall channel, *PloS one* 8(10) (2013) e75651.
- [14] D. Qujeq, T. Roushan, A. Norouzy, M. Habibi-Rezaei, M. Mehdinejad-Shani, Effects of dichlorvos and carbaryl on the activity of free and immobilized acetylcholinesterase, *Toxicology and Industrial Health* 28(4) (2012) 291-295.
- [15] M.H. Jacob, R.N. Dsouza, I. Ghosh, A. Norouzy, T. Schwarzlose, W.M. Nau, Diffusion-enhanced Förster resonance energy transfer and the effects of external quenchers and the donor quantum yield, *The Journal of Physical Chemistry B* 117(1) (2012) 185-198.
- [16] A. Norouzy, M. Habibi-Rezaei, D. Qujeq, M. Vatani, A. Badiei, Adsorptive immobilization of acetylcholine esterase on octadecyl substituted porous silica: optical bio-analysis of carbaryl, *Bulletin of the Korean Chemical Society* 31(1) (2010) 157-161.
- [17] A. Norouzy, D. Qujeq, M. Habibi-Rezaei, The inhibitory effect of dissolved carbaryl in dioxane on physically adsorbed acetylcholinesterase, *Reaction Kinetics and Catalysis Letters* 98(2) (2009)

## Research Grants

- Synthesis and Study of Blood-brain Barrier Penetrating Peptides, awarded by *National Institute of Genetic Engineering and Biotechnology (NIGEB)* 2019

- Synthesis and Comparative Study of Novel and Unspecific Cell-penetrating Peptides for Carrying Drugs and Fluorescent Probes into Cells, awarded by *Iran National Science Foundation (INSF) 2018*
- Synthesis Oligoasparatate and Oligoarginine Peptides and Compare their Cell-penetrating Capability, awarded by *National Institute of Genetic Engineering and Biotechnology (NIGEB) 2018*
- Synthesis and Dynamic Evaluation of Super Flexible Peptides for Binding to Hydrophobic Guest-molecules, awarded by *National Institute of Genetic Engineering and Biotechnology (NIGEB) 2017*
- Design and Synthesis new Oligopeptides Against Tumor Antigens, awarded by *National Elites Foundation 2016*

### **Supervised Dissertations**

- Synthesis, penetration assessment and study of the effect of blood-brain barrier shuttle peptides on the expression of Nrf2 gene, 2022, Ph.D
- Comparing the Cell-penetrating Efficiency of the Short-peptides with Opposite Electric Charges, 2020, M.Sc
- Synthesis of a Labeled Peptide and Study its Supramolecular Binding to p-Sulfonatocalix[4]arene and Curcumin Molecules, 2019, M.Sc
- Modified Mart-1 peptide for binding to HLA-A\*0201 on MCF7 cells, 2019, M.Sc
- Synthesis and Dynamic Evaluation of Supper Flexible Peptides, 2018, M.Sc
- Comparative Study of MOG with Cuprizone in EAE Mice Model, 2017, M.Sc

### **Positions and Projects**

**2004 M.Sc. Thesis:** Preparation & characterization of structural and catalytical properties of immobilized acetylcholinesterase. (*Department of biochemistry and biophysics, Babol University of medical sciences, Babol/Iran*)

#### **2008, Internship:**

- Chemically synthesis peptide silaffin R5 for biomineralization and imaging of silica particles and eGFP expression in E.Coli. (*TUM-Munich, Germany*)

**2009, Researcher:**

- Studying scorpion's toxin effect on metabolism and histology of Balb-C mice.  
(*Pasteur Institute of Iran*)

**2010, PhD Thesis (Two Main Projects):**

- 1- Indicator Displacement Assays in Live Cells.
- 2- Polypeptide Dynamics and Structure Studies Simultaneously by Collision-induced Fluorescence Quenching and Resonance Energy Transfer in the 10-Å Domain.  
(*Jacobs University Bremen, Germany*)

**2015, Researcher (at NIGEB):**

- Technology development for semi-industrial synthesis and US-pharmacopeia trial of Leuprolide acetate, a peptide-based drug.
- Design and synthesis of novel oligopeptide-based drugs against tumor antigens

**2017, Faculty member at NIGEB**

- Synthesis and Study Biological Function of Blood-brain Barrier Penetrating Peptides
- Evaluating the Binding Affinity of the Labeled Peptides to HLA-A2
- Design and Synthesis of Novel Cyclic Cell-penetrating Peptides
- Pharmacopeia Trial of Leuprolide Acetate
- Supervising EU Pharmacopeia Tests on Growth Hormone

**Communications:**

- A. Norouzy (talk), Z. Azizi "Peptide Design and Utility Based on Chemical Features of Amino Acid Side Chains" The 3<sup>rd</sup> conference on protein & peptide sciences, 25<sup>th</sup> to 26<sup>th</sup> April 2018 in Shiraz, Iran
- A. Norouzy (talk) "Macrocyclic-based Hosting as a Tool for Detecting Intracellular Small Biomolecules and Drug Delivery" 1<sup>st</sup> Congress of Chemical Biotechnology, 6<sup>th</sup> to 8<sup>th</sup> March 2016 in NIGEB, Tehran, Iran
- Chairman and member of panels at the 1<sup>st</sup> Congress of Chemical Biotechnology, 6<sup>th</sup> to 8<sup>th</sup> March 2016 in NIGEB, Tehran, Iran

- A. Norouzy, Z. Azizi, W. M. Nau “Host–Guest Reporter Pair with ‘Turn-on’ Fluorescence Response to Monitor the Uptake of Cationic Analytes into Live Cells ” Molecular life sciences, 3<sup>rd</sup> to 6<sup>th</sup> October 2013 in Frankfurt, Germany
- A. Norouzy (talk) ”Host-guest Reporter Pairs with ‘Turn-on’ Fluorescence Response to Signal the Uptake of Cationic Analytes into Live Cells” Retreat Molife center, 25<sup>th</sup> and 26<sup>th</sup> of March 2013 in Bad Bevensen Germany.
- “Hybrid in Microscopy” Workshop from 30<sup>th</sup>-31<sup>st</sup> January 2013 at Jacobs University Bremen.
- A. Norouzy, I. Ghosh, M. H. Jacob and W. M. Nau, “Simultaneous short-distance FRET and collision-Induced Fluorescence Quenching to quantify how peptide conformation and dynamics depend on side-chain charge” Förster resonance energy transfer, 27<sup>th</sup> to 30<sup>th</sup> of March, 2011 Göttingen, Germany
- A. Rei, I. Ghosh, R. D'Souza, A. Norouzy, M. H. Jacob, W. M. Nau, 2011, “Short-distance FRET applied to the polypeptide chain” MAF 12<sup>th</sup> conference on methods and applications of fluorescence spectroscopy, Imaging and Probes, Strasbourg, France, September, 2011
- A. Norouzy; Qujeq, D., 2008. “Effect of carbaryl and dioxan on physically adsorbed acetylcholinesterase kinetic”. The 8<sup>th</sup> Iran biophysical chemistry conference, University of Sistan-O Baluchestan, Zahedan, Iran.
- A. Norouzy; Qujeq, D,.... 2007. “Preparation and characterization of immobilized Acetylcholinesterase”. The second International Congress of Biochemistry and Molecular Biology. Oral presentation, Shiraz University of medical sciences, Shiraz, Iran.
- A. Norouzy , Theoretical and Experimental workshop of “immobilization of enzymes” Main director and lecturer, Babol University of Medical Sciences, Babol, Iran.
- A. Norouzy; Qujeq, D.2007. “A New Approach to Protein Analysis through Bound-Alkyl/Thioflavin T Competition procedure”. First Iranian proteomics congress, University of Tehran, Tehran, Iran.
- Qujeq, D; A. Norouzy,... 2005.”Determination Of Serum Iron, TIBC and Ferritin of patients with hepatitis B”. The First International Congress of Biochemistry and Molecular Biology. Oral presentation, Tarbiat Modarres University, Tehran, Iran.

## Memberships:

- German chemical society (GDCh: gesellschaft deutscher chemiker )
- The European peptide society (EPS: <http://www.eurpepsoc.com>)
- Iranian national elites foundation (<http://en.bmn.ir/>)
- Bioprocess engineering faculty, NIGEB

## English proficiency:

-2009 ibt-TOEFL. Score: **101**/120

-1990-present Studying English language, last diploma is pre FCE-2 from Kalam English Institute, Tehran, Iran. Total GPA: **92**/100.

-1998 ITC (Instructors Training Course) Diploma, From Sadegh English Institute, Signed by M.S Hamzepoor, PhD

## Awards and Honors

**2021** DAAD scholarship for former scholarship holder

**2016** Postdoc scholarship: Salary and research grant from national elites foundation

**2010-2013** DAAD fellowship: *Research Grants for Doctoral Candidates and Young Academics and Scientists*

**2008** Awarded for excellent teaching at Zabol University of medical sciences.

**2002, 2003** accepted among top-five students for three serial semesters in (IAUCTB), college of basic science.

**2004** 13<sup>th</sup> placed among thousands of volunteers in the national University entrance examination in the field of medical biochemistry.

**2004** 29<sup>th</sup> Placed among thousands of volunteers in the national University entrance examination in the field of biochemistry.

## Technical Skills

### 1- Spectroscopic

- Time-Resolved Fluorescence Spectroscopy
- Steady-state Fluorescence Spectroscopy

- Fluorescence Studying of Proteins and Peptides
- UV-Visible Spectroscopy
- Circular Dichroism (CD) Spectroscopy for Studying Proteins structure

## **2- Chemical Synthesis**

- Chemical Synthesis of Peptides (SPPS method)
- Organic Synthesis (DBO fluorophore was synthesized in 13 serially steps)
- Chemical Synthesis and Purification of Cucurbit[n]urils.
- Functionalizing of Inorganic Matrixes

## **3- Enzymes and Proteins**

- Enzyme Handling (both pure or extracted from animal tissues)
- Immobilization of Enzymes and Proteins
- Protein Purification by HPLC
- Protein-based Biomineralization

## **4- Laboratory animal handling & Rat dissecting**

## **5- Cellular**

- Cell Culture and Other Routine Cell Handling Skills
- Cell Manipulation (Microinjection)
- *in vivo* Macromolecular Host/Dye Displacement Assay
- Fluorescence and CLSM (Confocal Laser Scanning Microscopy) Imaging

## **Teaching Experiences**

**-2000-2006:** Teaching chemistry at many institutes and schools to high school students.

**-2005-2006:** Teaching biochemistry and organic chemistry to graduated and bachelor students in the preparatory classes held by many institutes.

**-2002-2007:** Teaching English in many language institutes.

**-2005-2006:** Teaching biochemistry and biochemistry laboratory in Babol University of medical science, professor assistant.

**-2007-2008:** Faculty of science at Zabol University of medical science.

- 2010: Faculty of science at National Institute of Genetic Engineering and Biotechnology (NIGEB)