

Muhammad Younus Ph.D

Im Sohlgraben 38, 35043 Cappel, Marburg | | +4915731015591 | younus@staff.uni-marburg.de

Curriculum Vitae:

Career Objective:

Results-oriented professional committed to maintaining high standards of accuracy, collaboration, and integrity while driving meaningful contributions to research and development initiatives.

Publications: [Google Scholar](#) | [ORCID iD](#) | [Linkedin](#)

Experience and additional education:

01.2023 - Till Date AG Oliver, Neurophysiology, Institute of Physiology and Pathophysiology, Philipps-University Marburg, Germany.

Research Associate (Neurophysiology)

Projects:

- Probing a contribution of *erg* (KCNH) potassium channels to the electrical response properties of Auditory Outer Hair Cells

Skills: Patch-clamp recording from the acutely isolated outer hair cells of mice and rats.

- Molecular mechanism and cellular function of channel-like behavior of SLC26 transporter proteins.

Skills: Patch-clamp recording from the Solute Carrier Family 26 (SLC26) transporter proteins using Chinese Hamster Ovary (CHO) cultured cells.

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Professional Courses: I completed a course in laboratory animal science, titled "Species-Specific Mouse Course on Laboratory Animal Science," at Marburg University. I also successfully attended and passed the German course, "German for International Ph. D.-Candidates and Postdocs (A.1), face-to-face," at Philipps University Marburg.

Teaching Experience: I supervised five internship courses for medical students at the School of Medicine, Institute of Physiology and Pathophysiology, Philipps University Marburg, Germany.

1. C-Nerv / C-Neuron (Current-and Voltage-Clamp Experiments in Virtual Laboratories)
2. C-Muskel (Physiological experiments on isolated frog muscle in the virtual laboratory)
3. Somatosensorik (Somatosensory System Course).
4. Blut (Blood Physiology)
5. EKG (Heart Physiology)

08.2020 – 08.2022 Professor Zhuan Zhou Laboratory, Institute of Molecular Medicine (IMM), College of Future Technology (CFT), Peking University (PKU), China.

Postdoctoral Research Scholar (Molecular Medicine)

Projects:

- Ketamine Modulates Dopamine Release Through an Indirect Pathway in Mouse Striatal Brain Slice.
- Established a new method of real-time dopamine recording in awake head-fixed mice in vivo using the electrochemistry amperometry technique.

The recipient of the "International Exchange Program Fellowship" program supported by the China Postdoctoral Science Foundation, to conduct postdoctoral research for the academic year 2020-2022.

Published peer-reviewed manuscripts: In several journals, such as Nature Communications, PNAS, Brain, Cell Reports, Journal of Cell Biology, Advanced Science, and Analyst.

01-2013 - 08.2015 H. A Shah & Sons is a group of Companies in Islamabad, Pakistan.

Sales and Application Engineer

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Responsibility: As part of an application engineering team, I led demonstrations of the company's (EPPENDORF, AGILENT TECHNOLOGIES) product development and provided technical support for life sciences products to customers. Expert in troubleshooting real-time PCR applications and conducting training at the customer's end. Trained clients on cell manipulation epMotion automated liquid handling systems of Eppendorf, and molecular biology products.

12-2011 - 12.2012 Global Marketing Services (GMS), a diagnostics company in Pakistan.

Sales and Application Specialist

Responsibility: Conducted surveys to assess the requirements of the customer database. Online support and hands-on technical operation demonstration of clinical diagnostic products like Mini-VIDAS, CAPILLARYS 3, GENEEXPERT, SMARTCYCLER, and SACYCLER-96. Trained in blood banking management procedures like product separation, screening, and safe blood transfusion to Thalassemia and Hemophilia patients at the Fatimid Foundation Karachi, Pakistan.

10.2011 - 11.2011 Pakistan Institute of Medical Sciences (PIMS) in the pathology laboratory.

Biochemist (Internee)

Responsibility: Learned the advanced medical procedures of clinical biochemistry in the Pathology Department, which includes manipulation of chemical analysis of renal calculus, operation of P800 modular Analyzer, Hitachi 902 Analyzer, Easylyte Electrolyte Analyzer, and Rapid Lab 348 Blood Gas Analyzer.

03.2011 - 10.2011 Islamabad Model College for Boys F- 7/3, Islamabad, Pakistan.

Lecturer

Responsibility: Taught biology courses to intermediate classes in college.

Academic Education:

2015 – 2020 **Ph.D. in Neuroscience (Molecular Medicine)**, Institute of Molecular Medicine (IMM), Peking University (PKU), China.

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Thesis: S (+) Ketamine Modulates Dopamine Release and Reuptake in Mouse Striatum *in vivo*.

2012 – 2014 **M.Phil. in Biochemistry/Molecular Biology** Department of Biochemistry, Quaid-i-Azam University (QAU), Islamabad, Pakistan.

Thesis: Characterization of Hereditary Human Hair Loss and Syndromic Form of Hearing Impairment in Consanguineous Families.

2009 – 2011 **M.Sc. in Biochemistry/Molecular Biology** Department of Biochemistry, Quaid-i-Azam University (QAU), Islamabad, Pakistan.

2006 – 2008 **B.Sc. in Biochemistry**, University of Balochistan (UoB), Quetta, Pakistan. Majors: Chemistry, Zoology, Geology.

Research Technical Expertise:

Electrochemistry: In vivo: Seven years of experience and four years as a leader in charge of in vivo electrochemistry amperometry setup in Professor Dr. Zhuan Zhou's laboratory. Capable of setting up electrochemistry amperometry and Fast Scan Cyclic Voltammetry (FSCV) system to record real-time dopamine recording in anesthetized mice in vivo using Carbon Fiber Electrode (CFE). I also developed a new method for real-time dopamine recording in awake, head-fixed mice in vivo using electrochemical amperometry.

In situ: Expert in brain slice cutting and recording dopamine in the Prefrontal Cortex (PFC), dorsal striatum, Nucleus Accumbens (NAc), and Ventral Tegmental Area (VTA) at the slice level using CFE electrochemistry amperometry technique.

Electrophysiology: Proficient in Patch Clamp recording at the single-cell level using cultured HEK-293, HeLa, Chinese Hamster Ovary (CHO), and Rat Adrenal Chromaffin Cells (RACC). I am skilled in patching single cells to record ion channel recordings from dopamine somas and medium spiny neurons (MSNs) at the brain slice level. Proficient in the dissection of the mouse cochlea and isolation of the acute organ of Corti to record ion channels from outer hair cells (OHCs) using the patch clamp technique.

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Optogenetics: Expert in dopamine recording from transgenic mice using light-induced neurotransmission in vivo and brain slice using CFE electrochemistry amperometry technique.

Molecular and Biochemical Assay: Specialized in DNA/RNA/Protein purification, PCR, RT-PCR, qPCR, SDS-PAGE, Site-Directed Mutation, Sub-cloning, transfection of plasmids, and Automation ELISA.

Primary Cell Culture: Expert in cell culturing of HEK-293, HeLa, Chinese Hamster Ovary (CHO), and Rat Adrenal Chromaffin Cells (RACC).

Bio-imaging and Craniotomy: Experience in craniotomy mouse surgery for Two-photon calcium imaging. Proficient in laser confocal microscopy and calcium (Ca²⁺) imaging at single-cell and brain slices.

Mouse Behavior Tests: Capable of operating Open Field Test (OFT), Elevated Plus Maze (EPM), Conditioned Place Preference (CPP), and Sucrose Preference Test (SPT).

Honors & Achievements:

- **Peking University International Cooperation Exchange Postdoctoral Fellowship** (2020-2022) from China Postdoctoral Science Foundation, Peking University, China.
- **Second Prize of Peking University Scholarship** (2018-2019) from Peking University, China.
- **Merit Student Certificate** (2018-2019) from Peking University, China.
- **Merit Student Certificate** (2015-2016) from Peking University, China.
- **Chinese Government Scholarship** (2015-2020) from China Scholarship Council.
- **Merit Fellowship** (2015-2020) from Quaid-e-Azam University (QAU), Islamabad, Pakistan.
- **Third Position** (National Essay Competition) (2014) from the Safe Blood Transfusion Program, Government of Pakistan.
- **Post-Graduate Scholarship** (2009-2011) from the Higher Education Commission (HEC), Pakistan.

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Major Project Funding:

- A study on ion channels, action potential, and quantal secretion in neurons (2020-2024) funded by the National Natural Science Foundation of China (**NSFC: 319300611761**).

Responsibility: Postdoctoral Research Fellow

- Molecular mechanisms of DJ-1-associated Parkinson's diseases (2018-2022) funded by the National Natural Science Foundation of China (**NSFC: 21790394**).

Responsibility: Ph.D. Student

- Decipher the functional phenotypes of the transgenic Parkinson's disease (PD) mouse model using simultaneous optogenetic fMRI and MRS with calcium and dopamine signal recordings (2018-2020) funded by the National Natural Science Foundation of China (**NSFC: 319300611761**).

Responsibility: Ph.D. Student.

Patents:

Simulation Software for Dopamine Release, 10th September 2017, with authorization code 2018SR223641, No. 02450589, People's Republic of China.

Selected Workshops and Conferences Attended:

- 40th Congress of the International Union of Physiological Sciences (IUPS), 11-14 September 2025, in Frankfurt/Main, Germany.
- International Symposium of the DFG Research Unit FOR5046 on Epithelial SLC26 Anion Transporters, 5-6th October 2023, in Marburg, Germany.
- 1st Cambridge AI in Drug Discovery Conference, 26th February 2022, in England.
- 1st Middle East Genetic & Metabolic Academy (MEGMA) Neurogenetics Conference, 2-3 July 2021, in Saudi Arabia.
- The 13th Biennial Conference of Chinese Neuroscience Society (CNS 2019), 10-13 October 2019, in Suzhou, China.

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- Symposium for Chinese Neuroscientists Worldwide (SCNW 2018), 6-9 July 2018, in Qingdao, Shandong, China.

Additional Skills:

Languages: Pashtu – Native | Urdu – Native | English – Advance | German – A1
Chinese – Basic | Brahui – Basic | Panjabi – Basic

Hobbies: Cricket | Baseball | Tennis | Badminton | Hiking | Photography

Volunteer Services: I am an active member of the Blood Donor Association in Pakistan.

References:

1. Prof. Dr. Dominik Oliver (Postdoc Advisor)

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Section of Neurophysiology, Philipps University Marburg
Deutschhausstr. 2, 35037 Marburg, Germany.

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2. Dr. Zhuan Zhou (Ph.D. and Postdoc Advisor)

Principal Investigator, Institute of Molecular Medicine (IMM)
College of Future Technology (CFT), Peking University,
5 Yiheyuan Road, Beijing, 100871, China.

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3. Dr. Zhai Haifeng

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