

**Dr. Rakhshinda Sadiq**

(Cell): +92-03467797219

Email: [rak.sadiq@gmail.com](mailto:rak.sadiq@gmail.com)

[rakhshinda\\_sadiq@wumardan.edu.pk](mailto:rakhshinda_sadiq@wumardan.edu.pk)

---

**SUMMARY**

- Experience of working with molecular biology techniques including **real-time PCR**.
- Experience of working with genetic toxicology assays including **Pig-a assay, Comet assay, Micronucleus assay, Chromosomal aberration, Ames test and Thymidine kinase (TK) mutation assay**.
- Cell culture experience with **bacterial cells** freshly isolated **human lymphocytes, TK6 human lymphoblastoid, CHO and CHS-20 monkey kidney cellline**.
- Experience of working with bacterial cell culture using **optical density (OD)** measurements and **colony-forming units (CFUs)** counting
- **Flow cytometric** experience with 2 and 3 lasers digital flow cytometer using **FACS Diva** software
- Experience of designing, planning and executing **genotoxicity studies** (*in vivo / ex vivo / invitro*).
- Experience of handling **rodents**; rats and mice (dosing, bleeding, sacrificing etc).
- Designed and executed a study as PhD project: Toxicological assessment of metallic nanoparticles.
- Executed a six months' research project: Toxicity assessment of metallic nanoparticles at Division of Genetic and Molecular Toxicology (DGMT), National Center for Toxicological Research (NCTR) / U.S. Food and Drug Administration (FDA), Jefferson, AR, USA.

**ACADEMIC CAREER**

**PhD (Biotechnology):** 2008-2014

**Research Project:** "Toxicological Assessment of Metallic Nanoparticles".

**University:** National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad / Pakistan Institute of Engineering and Applied Sciences (PIEAS), Pakistan / National Center for Toxicological Research (NCTR), U.S. Food and Drug Administration (FDA), Jefferson, AR, USA.

**MSc. (Biochemistry):** 1999 - 2001

**Research Project:** "Antagonistic potential of yeast sludge against aflatoxin B1".

**University:** University of Agriculture, Faisalabad, Pakistan.

**PROFESSIONAL CAREER**

**2017- To date** **Assistant Professor**

Department of Biotechnology

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

**2017- 2023** **Additional Registrar** (Additional Charge)

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

<b>2015- 2016</b>	<b>Assistant Professor</b> Department of Bioinformatics & Biotechnology International Islamic University (IIU), Islamabad, Pakistan
<b>2002 -2004</b>	<b>Teacher (SOS Hermann Gmeiner School)</b> SOS Children's Village Faisalabad, Pakistan
<b>2004- 2008</b>	<b>Teacher (Chiniot Islamia High School)</b> Faisal Town, Faisalabad, Pakistan

### **ORGANIZATIONAL EXPERIENCE**

1. Member research committee, Women University Mardan, 2017.
2. Member statutory bodies (Academic Council, Departmental Boards of Study, Board of Faculty, Finance and Planning Committee, Senate, Syndicate, and Selection Board), Women University Mardan, 2017.

### **HONORS & AWARDS**

1. PhD fellowship under indigenous PhD fellowship program offered by higher education commission (HEC) Pakistan. (2008-2014).
2. Six months' research training fellowship at National Center for Toxicological Research (NCTR) Jefferson Arkansas, FDA, USA offered by higher education commission (HEC) Pakistan. (2011).

### **INTERNATIONAL CONFERENCES/ WORKSHOPS ORGANIZED**

1. 3<sup>rd</sup> International conference entitled "Empowering nation through sciences", April 24<sup>th</sup> -25<sup>th</sup>, 2019 (Venue: Hotel Margala Islamabad, Pakistan) (As a principal Organizer).
2. Two-day international workshop entitled "Fundamentals and applications of NMR spectroscopy, October 26<sup>th</sup> - 27<sup>th</sup>, 2021 (Venu: Women University Mardan, Khyber Pakhtunkhwa, Pakistan). (As Patron).

### **RESEARCH PROJECT AWARDED AS PRINCIPLE INVERTIGATOR (PI):**

1. Institutional strengthening grant for upgrading libraries of PKR 2.882190 million by Higher Education Commission (HEC), Pakistan. (2018) **Completed**
2. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled "Copper nanoparticles: a 28-day repeated-dose oral toxicity study in mice". (2015) **Completed**

### **RESEARCH PROJECTS AWARDED AS CO- PRINCIPLE INVERTIGATOR (CO-PI):**

1. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled "Characterization and evaluation of exotic Brassica germplasm in Mardan based on morphological, biochemical and molecular markers". (2019), **Completed**.
2. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled "Extraction of phycobiliproteins from Oscillatoria microalgae and assessment of its medicinal and food benefits". (2019), **Completed**.

3. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Biological synthesis of silver nanoparticles and their antilishmaniasis activity”. (2020), **Completed**.
4. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Thin Film coating on surgical tools using PVD techniques”. (2020), **Completed**.
5. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 1.0 million) for the project entitled “Nitrogen-doped carbon materials from nitrogen rich precursors (Chicken feathers) for supercapacitor application”. (2021), **Completed**.
6. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 1.0 million) for the project entitled “Graphene oxide as catalyst and catalyst support: a green and facile approach towards aerobic oxidation of cyclohexane”. (2021), **Continued**.

#### **CONFERENCES / PRESENTATIONS:**

1. **Rakhshinda Sadiq**, Qaiser M. Khan, Ameena Mobeen and Tao Chen (2013). Toxicological assessment of metallic nanoparticles. *1<sup>st</sup> International Conference on “Biotechnology: Prospects and Challenges in Agriculture, Industry, Health and Environment*, April 22-26, 2013 Faisalabad, **Pakistan**.
2. **Rakhshinda Sadiq**, Qaiser M. Khan and Ameena Mobeen (2012). *In vivo* genotoxicity assessment of metallic nanoparticles (Fe<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub> and Cu) with micronucleus and comet assay. *6th International Conference on Nanotoxicology (Nanotoxicology 2012)*, September 4-7, 2012, Beijing, **China**.
3. Wei Ding, Michelle E. Bishop, Javed A. Bhalli, **Rakhshinda Sadiq**, Yan Li, Tao Chen (2012). Tissue-specific genotoxicity of titanium dioxide nanoparticles evaluated using the *in vivo* Comet assay. *51<sup>st</sup> Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.
4. Yan Li, Javed A. Bhalli, **Rakhshinda Sadiq**, Wei Ding, Mason Pearce, Roberta A. Mittelstaedt, Robert H. Heflich and Tao Chen (2012). Micronuclei in TK6 cells were increased by silver nanoparticles in a dose-, size- and surface coating-dependent manner. *51<sup>st</sup> Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.
5. Xinrong Chen, Yongbin Zhang, Jian Yan, **Rakhshinda Sadiq**, and Tao Chen (2012). Regulatory role of miR-34a in mutation rate in human lymphoblast cells. *51<sup>st</sup> Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.

#### **TRAININGS/WORKSHOPS**

1. One-day workshop on “Organic Food and Health: Avenues of Innovation and Entrepreneurship”, Organized by Pakistan Council for Science & Technology (PCST), Peshawar, 30 November, 2017.

2. Three days training on “Biorisk Management” organized by Association for Biorisk Management Pakistan in collaboration with Health Security Partners and Biotechnology Laboratory- Women University Mardan, Khyber Pakhtunkhwa, Pakistan, 17-19 October 2021.

### **PUBLICATIONS**

1. **Rakhshinda Sadiq**, Qaiser Mahmood Khan, Aameena Mobeen and Asma Shah., 2021. Genotoxicity of aluminium oxide, iron oxide, and copper nanoparticles in mouse bone marrow cells. *Arh Hig Rada Toksikol* 72, 315-325.
2. Saeeda Saeeda, Aftab Afzal, Muhammad Junaid yousaf, Fawad Ali, Salma Noreen, Kaleem Ahmad, **Rakhshinda Sadiq**, Nadia Sharif, Asma Shah and Farhad Ali., 2021. Influence of macronutrients, phytohormones and organic manure on *Gladiolus grandiflorus L.* growth, flowering and cormels. *Biosci. Res.* 18, 2652-2656.
3. Farhad Ali, Muhammad Shakeel, Muhammad Junaid Yousaf, Salma Noreen, Kaleem Ahmad **Rakhshinda Sadiq**, Nadia Sharif, Saeeda Saeeda and Asma Shah., 2021. Detection of dengue virus in suspected patients of 2013-2014 dengue outbreak in Swat, Khyber Pakhtunkhwa, Pakistan. *Biosci. Res.* 18, 2999-3014.
4. Hina Jabeen, **Rakhshinda Sadiq** , Muhammad Mushtaq , Neelam Zeb, Sidra Butt, Farah Masood , Arooj Anwar, Akhtar Rasool, 2021. Production of quality compost from Pennywort plant wastes. *J Biochem Biotech.* 2 (2), 248 – 260.
5. **Rakhshinda Sadiq**, Qaiser Mahmood Khan, Aameena Mobeen, Amer Jamal Hashmat., 2014. *In vitro* toxicological assessment of iron oxide, aluminium oxide and copper nanoparticles in prokaryotic and eukaryotic cell types. *Drug Chem Toxicol* 138, 152-161.
6. Yan Li, Javed A. Bhalli, Jian Yan, Mason G. Pearce, **Rakhshinda Sadiq**, Candice Cunningham, Tao Chen., 2013. Cytotoxicity and genotoxicity assessment of silver nanoparticles in mouse. *Nanotoxicology* 8, 36-45.
7. Xinrong Chen, Yongbin Zhang, Jian Yan, **Rakhshinda Sadiq**, Tao Chen., 2013. miR-34 suppresses mutagenesis by inducing apoptosis in human lymphoblastoid TK6 cells. *Mutat. Res– Genetic Toxicol. Environ. Mutagen* 758, 35-40.
8. **Rakhshinda Sadiq**, Javed A. Bhalli, Jian Yan, Mason G. Pearce, Yan Li, Thikra Mustafa, Fumiya Watanabe, Lindsay M. Pack, Alexandru S. Biris, Qaiser M. Khan and Tao Chen., 2012. Genotoxicity of TiO<sub>2</sub> anatase nanoparticles in B6C3F1 male mice evaluated using *Pig-a* and flow cytometric micronucleus assays. *Mutat. Res–Genetic Toxicol. Environ. Mutagen* 745, 65-72.

### **THESIS SUPERVISED**

#### **MPhil**

**Thesis Title: Subchronic Oral Toxicity of Copper Nanoparticles.**

(Student: Khadija Ijaz, Registration #: 225/FBAS/MSBT/F-15, Session. 2015-2017, Department of Bioinformatics & Biotechnology, Faculty of Basic and Applied Sciences, International Islamic University, Islamabad, Pakistan)

