Meher un Nissa

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SUMMARY

Molecular biologist and genetic engineer specializing in CRISPR/Cas9, PCR/qPCR, and RNA/DNA extraction. Expertise in cell and tissue techniques, including microinjection and stem cell culture, alongside manipulation of zebrafish and carp species. Proven skills in aquaculture immunology, protein assays like ELISA and Western blotting, and comprehensive omics analysis. Experienced in bioinformatics for sequence alignment and SNP mining, with a strong focus on lab management and biosafety compliance.

CREDENTIALS

Shanghai Ocean University — July, 2021

Ph.D. (Doctorate): Aquaculture
Shanghai, China

University of Agriculture — July, 2017

Master: Zoology, Wildlife & Fisheries Faisalabad,
Punjab, Pakistan

Government College of University — July, 2015
Bachelor: Zoology, Wildlife & Fisheries
Faisalabad, Punjab, Pakistan

WORK HISTORY

Postdoctoral researcher, 01/2024- Current
Shanghai Ocean University - Lingang, Shanghai, China

- Conducted CRISPR-Cas9 gene editing in zebrafish to study melanocyte formation and pigmentation
- Developed gene knockout lines (e.g., TRPV4, MITF, ASIP1, RARG, MC1R, MC5R, BMP4) and validated using molecular assays
- Constructed CRISPR vectors, performed microinjections, and screened for mutants
- Cloned promoters from different fish species to assess cross-species regulatory conservation
- Assisted in laboratory management, including ordering, safety checks, and student Supervision

- Collaborated with fellow researchers to generate innovative project ideas.
- Contributed significantly towards advancements in the field through meticulous experimentation and analysis work.

INSTRUMENTATION SKILLS AND EXPERIENCE

- Molecular Biology & Genetic Engineering; CRISPR/Cas9 (knockout/knock-in), PCR/qPCR RNA/DNA extraction, SNP genotyping, cloning, site-directed mutagenesis, Microinjection CRISPR vector construction
- Cell and tissue culture techniques Primary cell culture, stem cell culture, subcellular localization, transfection in cell line, stable cell line, immunostaining, histology
- Model organism expertise: Zebrafish (embryo manipulation, pigmentation studies), grass carp (disease resistance breeding), blunt snout bream and common carp.
- Protein enzyme assays: ELISA, western blotting, enzyme kinetics, spectrophotometry
- Additional skills Experience with sterile techniques, digital lab records, animal handling protocols, and collaborative cross lab project experience, experimental design.
- Analytical software and lab tools: Bioinformatics software (BLAST, MEGA) Microsoft office (Word, Excel, PowerPoint) Data analysis (SPSS, R, GraphPad prism), snapgene, bioedit, primer premier, image/Fiji and more
- Lab management and compliance Equipment maintenance, inventory tracking, sample documentation, biosafety compliance, SOP documentation
- Aquaculture and immunology: Vaccine design (gene deletion mutant), pathogen virulence analysis, host pathogen interaction assays
- Omics and Bioinformatics: Transcriptomic analysis, BSA (bulk segregant analysis), sequence alignment, miRNA target prediction, SNP mining, can read sanger sequencing and different alignment results.
- Wet lab experience

PROJECTS

- Utilize knock-out/knock-in zebrafish models to study melanocyte development and function.
- Cloned different promoter and transfer to different cell line and get stable celline.
- Bulk Segregant Analysis methods to determine the functional SNP or resistant gene in response to disease.
- Detection of five functional genes as disease-causing mutations in response to GCRV in mutant grass carp by RT-PCR
- Single Nucleotide Polymorphism (SNP) verification method for the confirmation of singlenucleotide at a specific position in the resistant gene.
- CRISPR Cas9 to edit genes and found a specific bit of DNA inside a cell.
- Bifenthrin+Chlorpyrifos mixture effect on glutathione-S-transferase activity in various organs of fresh water fish, *Ctenopharyngodon idella*.

PUBLICATIONS

1. Yuan Sun, Guo-Dong Zheng, **Meher un Nissa**, Jie Chen, Shu-Ming Zou. Disruption of mstna and mstnb gene through CRISPR/Cas9 leads to elevated muscle mass in blunt snout bream (*Megalobrama amblycephala*). *Aquaculture*, (2020), 528, 735597. Equal cont. with 1st author.
2. **Meher un Nissa**, Zhu-Xiang Jiang, Guo-Dong Zheng, Shu-Ming Zou. Selection of functional EPHB2 genotypes from ENU mutated grass carp treated with GCRV. *BMC genomic*, (2021), 22, 516.
3. Zhu-Xiang Jiang, **Meher un Nissa**, Guo-Dong Zheng, Shu-Ming Zou. An SNP at the target site of cid-miR-nov-1043 in the TOLLIP 3′ UTR decreases mortality rate in grass carp subjected to ENU-induced mutagenesis following grass carp reovirus infection. *Fish and shellfish immunology,* (2021), 120, 451–457. Equal cont. with 1st author.
4. Xiaona Xu, Doctor; Songlin Chen, Zhuxiang Jiang, **Meher un Nissa**, Shu-Ming Zou. Gill remodeling increases the respiratory surface area of grass carp (*ctenopharyngodon idella)* under hypoxic condition. *Journal of comparative biochemistry and physiology,* (2022), Part A 272, 111278.
5. Jinyuan Che, Binghong Liu, Qitong Fang, **Meher un Nissa**, Tuyan Luo, Lei Wang, Baolong Bao. ΔhlyIIIΔahh1 of Aeromonas hydrophila generated as a live attenuated vaccine in common carp (Cyprinus carpio), Aquaculture, (2024), 598, 742054
6. Jinyuan Che, Binghong Liu, Qitong Fang, **Meher un Nissa**, Tuyan Luo, Lei Wang*,5 Baolong Bao*, Biological studies reveal the role of trpA gene in biofilm formation, motility, hemolysis and virulence in Vibrio anguillarum, Microbial Pathogenesis, (2025), 0882-4010, 107331.

7. Qitong Fang, Zhuochen Liu, Kaile Wang, Binghong Liu, **Meher un Nissa**, Jinyuan Che, Baolong Bao, ΔFleQ of Aeromonas hydrophila generated as a live attenuated vaccine in common carp (Cyprinus carpio), Fish & Shellfish Immunology, Volume 162, 2025, 110361.
8. **Meher un Nissa**, Yidong Feng, Baolong Bao, A Comparative Review of Melanocortin and Pigmentation Pathways in Model Fish: Stickleback, Zebrafish, Medaka, Swordtail, and Betta (submitted)

DISSERTATIONS

- Selection of Functional Genotypes in ENU-mutant Grass Carp Resistance to GCRV by the Method of BSA Sequence Analysis (PhD)
- Bifenthrin+Chlorpyrifos mixture effect on glutathione-s-transferase activity in various organs of fresh water fish, *Ctenopharyngodon idella*. (Master)

PROFESSIONAL DEVELOPMENT & PRESENTATIONS

- 2 days, 4-5 December, Participation and Presentation of Research Work in Scientific Event, 1st National Paleontology seminar in Government College University, Faisalabad, Pakistan. (2014)
- 3 days, 3-5 December, Participation and Presentation of Research Work in Scientific Events, 10th symposium of the aquatic biotechnology professional committee. (2020)
- Workshop: CRISPR in Aquaculture Species, Shanghai Ocean University (2022)
- International Zebrafish Conference, Shanghai (2021)
- National Symposium on Gene Editing and Genomic Breeding in Aquaculture, Guangzhou (2022) International Fisheries Science Forum, Qingdao (2023) Aquaculture & Biotechnology Summit, Wuhan (2023)
- 2nd China Zebrafish Model Innovation Conference, Beijing (2024)
- Invited speaker: Poster presentation on CRISPR-KO in TRPV4& ASIP1 genes, Shanghai Ocean University (2023

LANGUAGE SKILLS

- **English** (read advanced, write advanced, speak advanced)
- **Urdu** (fluent)
- **Arabic** (read advanced)
- **Chinese** (speak basic)

REFERENCES

1)-Prof Baolong Bao

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Assistant Professor

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