LIST OF FACULTY MEMBERS ELIGIBLE FOR GUIDING PH.D STUDENTS WITH THEIR SPECIALIZATIONS AND AREAS OF RESEARCH

1. **DR. SANJAY CHHIBBER,** Professor
   Specialization: Applied Microbiology

   Areas of Research:
   - **Bacteriophages:** Therapeutic potential in treating burn wound and respiratory tract infections.
   - **Depolymerase enzyme and phage lysins:** Their antibiofilm potential
   - **Novel delivery systems :** Liposomes as delivery vehicles at burn wound site.
   - **Metagenomic studies:** On microorganisms isolated form cold habitats

2. **DR. PRINCE SHARMA**, Professor
   Specialization: Molecular Microbiology

   Areas of Research:
   - **Metagenomics**: for thermostable, novel industrially relevant enzymes like restriction endonucleases, laccases, xylanases and lipases applicable in Molecular Biology and paper industry
   - **Nanobiotechnology**: Development of biosensors for the detection of opiate drugs and bacterial pathogens.
   - **Biodiversity of novel laccases in natural and artificial eco-systems**
   - **Reverse Vaccinology:** *In silico* analysis of *Acinetobacter baumannii* genome and proteome to identify potential vaccine candidate proteins and *in vivo* validation of their immunoprotection efficacy.

3. **DR. (MRS) VIJAY PRABHA**, Professor
   Specilaization: Medical Microbiology

   Areas of Research:
   - Bacterial infections: Role in infertility.
   - Development of receptors to be an effective therapeutic intervention for infertility.
   - Profertility effect of probiotics.
   - Microbial metabolites as vaginal contraceptives.
   - Molecular mimicry between bacteria and spermatozoa.
   - Exploitation of bacteria-spermatozoa interactions at receptor ligand level to be developed as immunocontraceptives.

4. **DR. (MRS) PRAVEEN RISHI**, Professor
   Specialization: Medical Microbiology & Immunology

   Areas of research:
   Medical microbiology and immunology in the field of *Salmonella* infections and hepatotoxicity with special reference to:
   - **Host parasite interactions**- Pathogenesis, innate and adaptive immunity
   - **Epidemiological studies**: genotyping and phenotyping

- **Biotherapeutics and Nanobiotechnology**- Probiotics, phytochemicals, antimicrobial peptides alone or in conjunctions with antibiotics against *Salmonella* infections and hepatotoxicity.
- **Biosensors**- Immunobiosensors for the detection of *S. typhi*.

5. **DR. SANJEEV KUMAR SONI**, Professor
   Specialization: Food and Fermentation Technology

   Areas of Research:
   - **Industrial Enzymes:** Co-Production of multiple carbohydrases including cellulases, xylanases, mannanases, amylases, pullulanases, inulinases and pectinases on municipal solid waste and agro-industrial residues for use in Bioconversion of food and agro-industrial waste residues into sugars.
   - **Biofuels & Bioenergy:** Biorefinery development for bioconversion of Biodegradable municipal solid waste and agro-waste residues including rice straw, corn stover, defatted rice bran into ethanol
   - Process development for simultaneous bioconversion of starchy and non-starchy carbohydrates of cereals into ethanol
   - **Food Microbiology:** Production of non-traditional herbal wines from *Aloe vera* and ***Syzygium cumini*** with protective and therapeutic efficacies

6. **DR. (MRS) KUSUM HARJAI**, Professor
   Specialization: Medical Microbiology & Immunology

   Areas of Research:
   - **Sociomicrobiology:** Quorum sensing signal molecules and microbial communications.
   - **Biofilms :** Formation and their eradication.
   - **Quorum Quenching:** AHL degrading enzymes, Phytochemicals form fruit, herbs and spices.
   - **Therapeutics & Prophylaxsis:** Biotherapy, Phytotherapy, Apitherapy, Vaccinology.
   - **Immunobiology & Nanotechnology:** As anti-infective approach.

7. **DR. (MRS) GEETA SHUKLA**, Professor
   Specialization: Medical Microbiology & Parasitology

   Areas of Research:
   - Materno-foetal relationship in murine malaria during pregnancy with special reference to molecular mechanism of placental pathology.
   - Modulation of murine giardiasis by the supplementation of probiotics in normal /malnourished/ renourished mice.
   - Experimental assessment of probiotics/synbiotic as the natural biointervention in the colon cancer.

8. **DR. DEEPAK KUMAR RAHI**, Assistant Professor
   Specialization: Mycology

   Areas of Research:

- Bioprospecting Fungal Diversity from Newer Biotopes
- Production & Industrial and Environmental Applications for Fungal Metabolites (Exopolysaccharides Enzymes, Mycoproteins),
- Fungal Endophytes from different Plant Hosts for Metabolites & their Potential Applications
- Fungal Nanotechnology (Fungal mediated synthesis of metal nanoparticles & Potential Applications)
- Fungal Germplasm Conservation

9. **DR. NAVEEN GUPTA**, Assistant Professor
Specialization: Applied and Molecular Biology

Areas of Research:

- **Industrial Enzymes**: Isolation of novel bacterial enzymes like Xylanases, Laccases, Mannanases, Proteases for applications in pulp and paper, leather, detergent, food and cosmetic industry .
- **Molecular Biology:** Cloning of genes for over expression of enzymes and analyzing the basis of their novel properties at molecular level
- **Bioremediation**: Development of process for bioremediation of industrial waste using microorganisms.

10. **DR. SEEMA KUMARI**, Assistant professor
Specialization: Medical Microbiology

Areas of research:

- Bacteriophages as alternate strategy to combat antibiotic resistance among bacteria.
- Phytochemicals as antimicrobial agent for the treatment of various bacterial diseases
- Role of resolvins as immunomodolators for various bacterial diseases
- Probiotics as an alternative treatment of septic arthritis