



AGENTIC AI FOR DRUG DISCOVERY & BIOTECHNOLOGY

Exclusive Hands-On Training Programme
With Project Work & Job Placement Assistance

GET TRAINED | WORK ON PROJECTS | BUILD REAL AGENTS
GET WORK EXPERIENCE LETTER | GET PLACEMENT ASSISTANCE

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AI will not
replace biologists.

But biologists
who build
AI agents
will replace those
who don't.



Build Intelligent AI Agents
That Discover Drugs, Analyse Omics Data &
Accelerate Biotech Innovation

Why Agentic AI? The Shift That Is Reshaping Biotech

The life sciences industry is undergoing a fundamental transformation. Traditional machine learning models predict. Agentic AI reasons, plans, selects tools, executes actions, and iterates — autonomously. This is not a marginal upgrade; it is a paradigm shift.

What Has Changed

For decades, computational drug discovery relied on statistical models trained on fixed datasets. A model would take an input, produce an output, and stop. The scientist had to interpret results, run the next experiment, search another database, and stitch everything together manually.

Agentic AI systems change this entirely. An agent can receive a high-level goal — for example, 'identify the top five druggable targets for Type 2 diabetes' — and autonomously:

- Search PubMed for the latest literature
- Query UniProt and PDB for protein data
- Cross-reference ChEMBL and Open Targets for existing compound activity
- Score and rank targets using defined criteria
- Return a structured, evidence-backed report

What previously required days of manual effort by a trained researcher can now be completed in minutes by a well-designed agent.

Why This Matters for Life Sciences Professionals

The pharmaceutical and biotech industries are investing heavily in AI-driven research infrastructure. According to industry analyses, over 70% of top pharma companies have active AI drug discovery partnerships or in-house programmes. The bottleneck is no longer compute power or data — it is professionals who can build, deploy, and manage intelligent scientific agents.

The gap is not between those who know AI and those who do not.
It is between those who can build AI systems for biology and those who cannot.
This programme closes that gap.

Key Reasons to Learn Agentic AI Now

Driver	What It Means for You
Industry adoption	Top pharma and biotech companies are integrating LLM-powered research copilots into their pipelines right now
Talent shortage	There are far fewer professionals who can build scientific AI agents than there is demand for them
Career differentiation	A GitHub portfolio of working biotech AI agents sets you apart from thousands of biology graduates

Driver	What It Means for You
Automation of repetitive research	Literature mining, database queries, and target scoring are being automated — those who automate will lead
Emerging job categories	Roles like AI Scientist, Scientific LLM Developer, and Bioinformatics AI Engineer did not exist five years ago

The Technology Driving This Shift

Several converging technologies have made production-grade agentic AI in biology possible:

- Large Language Models (LLMs) that understand and generate scientific text, SMILES strings, and biological sequences
- Retrieval-Augmented Generation (RAG) allowing agents to query live databases rather than rely on static training data
- ReAct (Reasoning + Acting) frameworks enabling agents to plan multi-step tasks and recover from errors
- Open scientific APIs — PubMed, UniProt, ChEMBL, PDB, Open Targets — that expose the world's biological knowledge to programmable agents
- Low-code deployment tools like Gradio that make it straightforward to ship scientific AI tools as usable web applications

AI will not replace biologists.

But biologists who build AI agents will replace those who do not.

This programme turns you into the person doing the replacing.

Programme Overview

In this 60-day intensive programme, you will design, build and deploy agentic AI systems that can:

- Autonomously search and interpret scientific literature
- Integrate PubMed, UniProt, PDB, ChEMBL, GEO and Open Targets into unified workflows
- Discover and score drug targets programmatically
- Generate, filter and rank drug-like molecules
- Evaluate ADMET and drug-likeness properties
- Analyse RNA-Seq, variants, and biological networks
- Design CRISPR guides and perform codon optimisation
- Simulate virtual screening and optimisation pipelines

You will not just learn AI concepts — you will engineer real, multi-tool scientific agents used in computational drug discovery and biotechnology. This is hands-on, tool-integrated, production-ready Agentic AI for biotech professionals.

Programme Detail	
Start date	Recorded – Self-Learning with LIVE doubt-solving sessions
Duration	60 days – 60 structured sessions
Format	Recorded + Assignments + Mini Projects + Capstone Project
Projects	30 capstone projects to choose from
Tools	Google Colab, Python, RDKit, PubMed, UniProt, ChEMBL, Gradio, GitHub and more
Certificate	Completion Certificate in Agentic AI for Drug Discovery & Biotechnology

What Makes This Programme Unique

Unlike generic AI courses, this programme integrates biology foundations with production-level agent engineering. You will graduate with multiple working AI agents and a published capstone project in your GitHub portfolio.

- Biology foundations built into every module
- Python taught from scratch using real biological datasets
- Cheminformatics: RDKit, SMILES, Lipinski filters
- Live API integrations: PubMed, UniProt, PDB, ChEMBL
- LLM-powered ReAct agent design
- Retrieval-Augmented Generation (RAG) for scientific literature
- Full drug discovery workflow automation
- Deployment using Gradio
- GitHub portfolio building across the programme
- 30 capstone project options with defined objectives and timelines

Curriculum Overview — 60 Sessions

Module 1: Bootcamp — Foundation of Biology + Python

Gain biological literacy first, then master Python using real biological datasets.

Key Concepts Covered

- Central Dogma (DNA → RNA → Protein)
- Proteins & PDB analysis
- Drug discovery pipeline
- Omics overview
- Biological databases (NCBI, GEO, SRA)
- Python fundamentals: variables, loops, functions, APIs
- Pandas, Matplotlib
- Cheminformatics with RDKit
- Mini Data Collector Project
- AI & LLM fundamentals

Hands-On Includes

- Transcribing genes in Colab
- Fetching UniProt sequences
- RNA-Seq data analysis
- Plotting molecular distributions
- Building your first biological data script

Module 2: Agentic AI Foundations

Understand LLMs, prompting, and build your first ReAct agents.

You Will Learn

- Prompt engineering: zero-shot, few-shot
- Structured JSON outputs
- Tool integration
- Memory for agents
- Retrieval-Augmented Generation (RAG)
- PubMed search automation
- UniProt, PDB, ChEMBL integration
- Disease-to-Target Agent Mini Project

You Will Build Agents That

- Search literature
- Fetch protein sequences
- Retrieve PDB structures

- Rank drug targets

Module 3: Drug Discovery Agents

Apply agents to target validation, ADMET, screening and optimisation.

Hands-On

- Target scoring system
- Literature mining agent
- Molecular similarity search
- ADMET prediction integration
- Generative SMILES models
- Virtual screening simulation (AutoDock concept)
- Multi-tool error handling
- Evaluation metrics
- Deploy agent using Gradio

You will build a complete screening agent prototype.

Module 4: Biology & Multi-Omics Agents

Expand into genomics, networks and knowledge graphs.

You Will Build Agents That

- Analyse RNA-Seq data
- Perform variant lookup (ClinVar)
- Build co-expression networks
- Query Hetionet for drug repurposing
- Generate CRISPR guides
- Perform codon optimisation
- Add caching and optimisation layers

Mini-Project Options

- Target Validation Agent
- Drug Repurposing Agent
- CRISPR Guide Designer

Advanced & Critical Thinking Sessions

- Responsible AI in drug discovery
- Clinical translation failure analysis
- Intellectual property in AI-generated molecules
- Critical appraisal of AI-drug discovery papers
- Career and portfolio workshop

Capstone Projects — Build Something Real

Every participant selects, builds, and publishes a real-world agentic AI project to their GitHub portfolio. Project completion and GitHub publication are required for the Completion Certificate.

Choose from 30 industry-relevant project titles across drug discovery, cheminformatics, genomics, and multi-omics — each scoped with a defined objective and recommended timeline.

Drug Discovery & Cheminformatics Projects

Project Title	Objective	Duration
Autonomous Virtual Screening & Hit Triage Agent	Given a protein target name, automatically dock a compound library and return top-scoring, drug-like hits	6 months
Automated QSAR Model Builder & Evaluator	Build, validate, and deploy a QSAR model from a user-provided CSV of molecules and activity	6 months
Semantic Search Agent with Self-Reflective Retrieval for Drug Repurposing	For a given disease, autonomously mine literature and propose repurposable drugs with supporting evidence	3 months
Multi-Objective Lead Optimisation Agent	Start from a hit molecule and iteratively generate analogues that improve bioactivity, ADMET, and synthetic accessibility	12 months
Reverse Docking Target Identification Agent	Given a small molecule or natural product, identify the most likely protein targets by docking against known drug targets	6 months
NeuroRepurpose Agent: AI-Driven Drug Repurposing for Alzheimer's Disease	AI agent for Alzheimer's drug repurposing using knowledge graphs and literature mining	3 months
Autonomous Disease-to-Target Mining Agent	Accept a disease name, search recent literature, and extract a structured list of putative gene or protein targets	3 months
Cheminformatics Agent for Drug-Likeness Assessment	Accept a SMILES string, calculate physicochemical properties, and assess drug-likeness	3 months
Network-Based Drug Repurposing Hypothesis Generator	Navigate biological networks to suggest new indications for existing drugs based on overlapping gene targets	6 months
AI Agent for ADMET Property Prediction	Agentic AI-driven prediction of drug-likeness and ADMET properties in drug discovery	3 months
AI Agent for Predicting Anticancer Activity Using QSAR Models	Screen chemical compounds and predict their potential anticancer activity	3 months
AI Agent for End-to-End Drug Discovery	Autonomous virtual screening pipeline that screens compounds, predicts biological activity, and identifies promising drug candidates	6 months

Project Title	Objective	Duration
Drug Discovery Agent for De Novo Molecular Design	Autonomously generate, evaluate, and prioritise novel drug-like compounds	12 months
BioLit-Agent: Automated Literature Mining & Research Gap Identification	Search scientific literature, extract key findings, summarise papers, and identify research gaps in a chosen biological domain	3 months
Bio-Agent: Disease Mechanism Analysis & Therapeutic Target Identification	Autonomous multi-agent platform that integrates biological databases and literature, mimicking the workflow of a biomedical researcher	3 months
DrugRepurpose-Agent: Multi-Agent System for Disease-Specific Drug Repurposing	Identify candidate drugs by integrating literature, target databases, molecular interactions, and AI-based ranking	3 months
PharmaAgent: End-to-End Target Discovery, Drug Repurposing & Lead Prioritisation	Transform disease knowledge into actionable therapeutic leads using AI and bioinformatics	6 months

Genomics, Omics & Biological Systems Projects

Project Title	Objective	Duration
OncoTarget Agent: Cancer Biomarker Discovery & Precision Oncology Platform	Autonomous multi-agent platform for cancer biomarker discovery and therapeutic target prioritisation	3 months
GenoInsight Agent: Clinical Genomics & Variant Interpretation Assistant	Intelligent genomics agent for variant interpretation and rare disease diagnosis	3 months
SingleCell Agent: Autonomous Single-Cell Transcriptomics Analysis Platform	AI agent for cell-type identification and cellular heterogeneity analysis	6 months
Microbiome Agent: Gut Microbiome Profiling & Functional Prediction System	AI agent for microbiome characterisation and microbial function prediction	6 months
ProteinStructure Agent: Protein Structure Prediction & Functional Annotation	AI agent for protein structure analysis and function prediction	6 months
PathwayInsight Agent: Biological Pathway Reconstruction & Network Analysis	AI agent for pathway discovery and molecular network analysis	6 months
Epigenome Agent: Intelligent DNA Methylation Analysis Platform Using NGS Data	AI agent for DNA methylation profiling and epigenetic biomarker discovery	3 months
BioImage Agent: Autonomous Biomedical Image Analysis & Disease Classification	AI agent for analysing medical and microscopic images for disease classification	12 months
NGS-QC Agent: Autonomous Sequencing Quality Assessment & Data Validation Platform	AI agent for automated NGS quality control, sequencing error detection, and data validation	12 months

Project Title	Objective	Duration
Automated Sequence Profiling Agent	Take a gene or protein name, retrieve its biological sequence, and compute fundamental biomolecular properties	3 months
CRISPR gRNA Heuristic Scoring Agent	Scan a target DNA sequence, identify CRISPR/Cas9 cut sites, and score them based on GC content and other heuristics	6 months
Self-Supervised Cross-Omics Fusion Agent for Cancer Analysis	Integrate genomics and transcriptomics datasets autonomously to uncover biological insights and potential biomarkers	6 months
BioDesign-Agent: Gene Analysis, Codon Optimisation & Protein Design	Analyse DNA/protein sequences and suggest optimisation strategies for expression and protein engineering	3 months

Companies Hiring in Agentic AI — India & Global

The demand for professionals who can build AI agents for scientific and biotech applications is growing rapidly. Below is a snapshot of the companies actively hiring for these skills, both in India and internationally.

Global Companies Hiring in Agentic AI for Drug Discovery & Biotech

Company	Country / HQ	What They Are Building
Insilico Medicine	Hong Kong / Global	AI-driven drug target identification, generative molecular design, clinical trial prediction
Recursion Pharmaceuticals	USA	Autonomous biological experimentation and AI-led drug repurposing at scale
Schrödinger	USA	Computational drug design, molecular simulation, and LLM-integrated research platforms
BenevolentAI	UK	Knowledge graph-based drug repurposing and agentic literature mining
Exscientia	UK / USA	AI-designed drug candidates with autonomous molecule generation and optimisation
Absci Corporation	USA	Generative AI for antibody and protein drug design
Atomwise	USA	Deep learning for virtual screening and hit identification
Isomorphic Labs (DeepMind)	UK	AlphaFold-driven protein structure-to-drug workflows
Pfizer AI Labs	USA	Internal AI platforms for target discovery and clinical operations
Novartis AI Innovation Lab	Switzerland	AI-powered research automation across the entire drug pipeline
AstraZeneca Data Science	UK / Sweden	Multimodal AI for oncology, genomics, and clinical biomarker work
Genentech / Roche	USA / Switzerland	Bioinformatics AI for precision oncology and personalised medicine
IBM Research (Life Sciences)	USA / Global	AI agents for biomedical literature mining and drug interaction modelling
Microsoft Health & Life Sciences	USA / Global	Azure AI infrastructure for pharma partners; generative biology tools

Companies Hiring in India

Company	Location	Focus Area
Tata Consultancy Services (TCS)	Pan-India	Life sciences AI, bioinformatics platforms, drug data pipelines for pharma clients
Infosys BPM / Infosys Life Sciences	Bangalore, Pune	AI-led clinical data management, NLP for drug safety, agentic workflow automation
Wipro Healthcare & Life Sciences	Bangalore, Hyderabad	Bioinformatics AI, ADMET modelling, clinical trial data agents
Cognizant Life Sciences	Chennai, Hyderabad	Pharmacovigilance automation, drug safety agents, AI for regulatory submissions
Aganitha Cognitive Solutions	Hyderabad	Agentic AI specifically for drug discovery — ADMET, QSAR, target identification
Strand Life Sciences	Bangalore	Genomics and clinical diagnostics AI, cancer biomarker platforms
Schrödinger India	Hyderabad	Computational drug design roles, molecular modelling with AI integration
Biocon Biologics	Bangalore	Bioinformatics and AI for biosimilar development and clinical research
Sun Pharma AI Team	Mumbai / Vadodara	AI for drug formulation, pharmacovigilance, and manufacturing intelligence
Dr. Reddy's Laboratories	Hyderabad	Computational chemistry, drug repurposing AI, bioinformatics engineering
Mu Sigma Life Sciences	Bangalore	Data science and AI for pharma analytics and clinical operations
Amazon AWS Life Sciences (India)	Bangalore	Cloud AI infrastructure for biotech clients; bioinformatics workflows on AWS
Microsoft India (Health AI)	Hyderabad, Bangalore	Azure OpenAI applications in healthcare and life sciences

Note: This list reflects known hiring activity as of 2025-26. The agentic AI hiring landscape is evolving rapidly.

Many Indian pharmaceutical companies are also building internal AI teams in Hyderabad, Bangalore, Pune, and Mumbai.

Roles in this space are often listed under titles such as: AI Scientist, Bioinformatics Engineer, Computational Biologist,

Scientific Data Scientist, Research Automation Engineer, and LLM Application Developer.

Career Map — Your Journey from Graduate to AI Agent Builder

This map shows the progression paths available to you after completing this programme, based on your current background and the skills you will acquire.

Starting Points

Biology / Life Sciences Graduate BSc / MSc / MTech / PhD in Biotechnology, Biochemistry, Bioinformatics, Microbiology, Pharmacy	Research Scholar / Industry Professional PhD scholar, research associate, or industry professional looking to upskill in AI-driven research	AI / CS Professional Entering Biotech Software engineer, data scientist, or ML practitioner seeking domain specialisation in life sciences
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Skills You Will Gain — The Core Stack

After completing the programme, you will have demonstrable competency in:

Biology & Domain Knowledge	AI & Engineering Skills	Tools & Deployment
Drug discovery pipeline	LLM-powered ReAct agents	Google Colab, Python
Protein structure & databases	Retrieval-Augmented Generation	RDKit, SMILES, Lipinski
Omics data (RNA-Seq, variants)	Prompt engineering (zero/few-shot)	PubMed, UniProt, PDB APIs
Cheminformatics fundamentals	Multi-tool agent design	ChEMBL, Open Targets, GEO
ADMET & drug-likeness	Agent memory & caching	Hugging Face, Gradio
CRISPR & codon optimisation	Error handling & evaluation	GitHub portfolio

Career Pathways After This Programme

Role	Industry	Key Responsibilities
AI Scientist – Drug Discovery	Pharma / Biotech	Build agents for target identification, compound screening, and ADMET evaluation
Computational Drug Discovery Associate	CRO / Pharma	Run virtual screening pipelines, QSAR modelling, and hit triage workflows
Bioinformatics AI Engineer	Genomics / Healthcare	Automate omics data pipelines, variant analysis, and network-based analyses
Cheminformatics Developer	Pharma / Agri-biotech	Build molecular data systems, drug-likeness scorers, and similarity search tools
Scientific LLM Application Developer	Biotech / IT Services	Design and deploy LLM-powered research assistants and literature mining tools
Research Automation Engineer	Academia / Industry	Automate experimental data collection, database mining, and report generation

Role	Industry	Key Responsibilities
AI Product Developer – Biotech	Startups / IT	Build and ship AI-powered biotech products for research teams and clinicians
Genomics Data Scientist	Clinical / Diagnostics	Analyse NGS data, build variant interpretation tools, support precision medicine workflows

Progression Map — From Programme to Career

During the Programme (60 days)

- Module 1: Biology + Python foundations
- Module 2: First ReAct agents — Disease-to-Target Mini Project
- Module 3: Drug discovery agents — Full screening prototype deployed on Gradio
- Module 4: Multi-omics agents — RNA-Seq, CRISPR, network agents
- Capstone: Choose project, build, and publish to GitHub

Immediately After (0-3 months)

- Published GitHub portfolio with working agents
- Completion Certificate in Agentic AI for Drug Discovery & Biotechnology
- Apply for junior roles: Research Automation Engineer, Bioinformatics AI Engineer, AI Associate
- Freelance or contract work on scientific AI tools

Short-Term (3-12 months)

- Expand portfolio with additional capstone projects (6- or 12-month scope)
- Contribute to open-source biotech AI repositories
- Transition into specialised roles: Cheminformatics Developer, Scientific LLM Developer

Medium-Term (1-3 years)

- Senior roles: AI Scientist, Computational Drug Discovery Lead
- Build and lead AI agent teams within pharma or biotech organisations
- Found or join an AI-first biotech startup

Meet Your Faculty

Our faculty bring together expertise from computational biology, cheminformatics, AI engineering, and pharmaceutical research. Each trainer has been selected not only for their academic credentials but for their practical experience building and deploying AI systems in scientific contexts.



Dr. Elamathi Natarajan

Bioinformatics & AI Specialist | Computational Biology | NGS | AI-Driven Drug Discovery

Bioinformatics CRO Scientist, Biotechnika, Bangalore

Dr. Elamathi Natarajan is a seasoned Bioinformatics and AI expert with 13+ years of experience at the intersection of life sciences, computational biology, and data science. She currently serves as a Bioinformatics CRO Scientist at Biotechnika, Bangalore, where she leads projects in NGS data analysis, transcriptomics, multi-omics, and AI-driven drug discovery.

Her expertise lies in transforming complex biological data into actionable insights using machine learning, bioinformatics pipelines, and advanced data analytics. She has strong hands-on experience in RNA-seq analysis, differential gene expression, variant calling, biomarker discovery, disease prediction, precision medicine applications, and machine learning model development for biological data.

Dr. Elamathi is also skilled in building and applying Python- and R-based bioinformatics workflows for research and translational applications. Her work spans computational genomics, infectious disease research, virtual screening, molecular docking, and AI/ML integration in life science research.

Previously, she has served in academic leadership roles including Assistant Professor and Head (In-Charge), contributing to interdisciplinary teaching, student mentoring, and curriculum development in bioinformatics and artificial intelligence. She has also been associated with premier research organisations such as ICMR-NIMR, NIPGR, and DRDO. Dr. Elamathi holds a Ph.D. in Bioinformatics and has been recognised with the Excellence in Research Award (2024).

Core Expertise

- AI & Machine Learning in Life Sciences
- RNA-seq, NGS & Multi-omics Data Analysis
- Python, R & Bioinformatics Pipelines
- Drug Discovery (Virtual Screening & Docking)
- Biomarker Discovery & Disease Modeling
- Transcriptomics & Precision Medicine

Google Scholar: <https://scholar.google.com/citations?user=SntWOEcAAAAJ&hl=en>



Dr. Nilofer K. Shaikh

AI/ML & Bioinformatics Specialist | Cancer Omics | Precision Medicine

Biotechnika CRO Scientist | Ph.D. Bioinformatics, MIT ADT University, Pune

Dr. Nilofer K. Shaikh is an accomplished computational biologist and bioinformatics researcher specialising in big data analysis of cancer omics using advanced computational and AI-driven approaches. Her research expertise spans genomics, proteomics, transcriptomics, metabolomics, and pharmacogenomics, focusing on biomarker discovery, precision cancer medicine, and data-driven drug development.

She has extensive experience in multi-omics integration — including WGS, RNA-seq, scRNA-seq, and proteogenomics — and applies machine learning, deep learning, and natural language processing (NLP) for cancer biomarker identification and drug sensitivity prediction. Dr. Shaikh is proficient in Python, R, Biopython, MySQL, Weka, Seurat, Scanpy, and Bioconductor, with hands-on expertise in AI/ML, deep learning, and cloud computing (AWS).

She has worked as a Technical Associate at BDG Lifesciences (2020-2023), training students and researchers in Python, R, AI, bioinformatics, and cheminformatics. Earlier, she served as Project Assistant II at CSIR-National Chemical Laboratory, Pune (2018-2020) on the CSIR-sponsored project 'AI-Based Compute Cure for Cancer,' designing QSAR and AI models for FDA-approved biological drugs.

Her research contributions are published in journals including Current Topics in Medicinal Chemistry (IF 3.57) and Journal of Biomolecular Structure & Dynamics (IF 5.23). She holds an Indian Patent (Design No. 384325-001) and has presented at NVIDIA GPU Technology Conference (GTC), Silicon Valley (2019), TCGA South Asia Workshop (2020), and other international forums. She has received the 1st Prize at ACAR (2020) and 1st Prize at ICRTB (2019).

Core Expertise

- Multi-omics Integration (WGS, RNA-seq, scRNA-seq)
- AI, ML & Deep Learning for Cancer Biology
- Biomarker Discovery & Precision Oncology
- QSAR Modelling & Drug Sensitivity Prediction
- Python, R, Bioconductor & Cloud Computing (AWS)
- NLP for Biomedical Literature Mining

Google Scholar: <https://scholar.google.co.in/citations?hl=en&user=iH5LZyUAAAAJ>



Mr. Prodyot Banerjee

CADD, Bioinformatics & Genomics Specialist

Biotechnika CRO Scientist | MTech Bioinformatics, Delhi Technological University

Prodyot Banerjee is a distinguished bioinformatician and computational biologist whose career exemplifies interdisciplinary innovation at the intersection of data science and life sciences. He holds a Master of Technology in Bioinformatics from Delhi Technological University and has qualified the nationally competitive GATE and CSIR-NET examinations.

His expertise forms a sophisticated pipeline for the discovery and characterisation of therapeutic interventions. He is a seasoned practitioner of Computer-Aided Drug Design (CADD), employing in silico methodologies including structure- and ligand-based virtual screening, pharmacophore modelling, molecular docking, and Molecular Dynamics (MD) Simulations to identify high-potency lead compounds.

Mr. Banerjee's research extends into advanced genomics data analysis, applying algorithms for phylogenetic reconstruction and genome-wide association studies (GWAS) to decipher the molecular aetiology of complex diseases. His work, published in high-impact SCI-indexed journals, has amassed a cumulative impact factor of 43.87.

His research experience spans India's premier institutions, including CSIR-Institute of Genomics and Integrative Biology (IGIB), IIT Madras, AIIMS Delhi, and CSIR-CLRI Chennai. He has guided over 200 students from undergraduate to postdoctoral level and delivered invited talks at CSIR-IGIB, AIIMS, NII, IIT Madras, IIT Kharagpur, and the All India Institute of Ayurveda (Goa and Delhi).

Core Expertise

- Computer-Aided Drug Design (CADD)
- Virtual Screening & Pharmacophore Modelling
- Molecular Docking & MD Simulations
- Phylogenetic Reconstruction
- Genomics & GWAS Analysis
- Bioinformatics Pipeline Development

Google Scholar: https://scholar.google.com/citations?hl=en&user=KG_2tilAAAAJ **LinkedIn:** <https://www.linkedin.com/in/prodyot-banerjee-86728a185>



Dr. Shubhi Singh

Bioinformatics & Computational Drug Design Specialist

Biotechnika CRO Scientist | Ph.D. Biotechnology, SRM Institute of Science and Technology

Dr. Shubhi Singh is a dedicated researcher and educator with a Ph.D. in Biotechnology from SRM Institute of Science and Technology, bringing a strong interdisciplinary background in both computational and experimental research.

Her expertise spans molecular docking, molecular dynamics simulations, structural bioinformatics, immunoinformatics, and whole-genome analysis, along with the application of AI and machine learning techniques in drug discovery. She leverages ML models for virtual screening, drug repurposing, and prediction of protein-ligand interactions, enabling faster identification of potential therapeutic candidates against antibiotic-resistant pathogens.

Dr. Shubhi has strong proficiency in computational tools including Python (NumPy, Pandas, Matplotlib) and cheminformatics tools such as RDKit, Open Babel, and DeepChem, integrating AI/ML workflows with molecular modelling to enhance drug discovery pipelines. She has published multiple research articles in journals including Molecular Diversity and Journal of Biomolecular Structure and Dynamics.

Beyond research, she has extensive teaching experience training undergraduate and postgraduate students in microbiology, molecular biology, computational biology, and AI/ML concepts in life sciences. She serves as a reviewer for peer-reviewed journals and is a recipient of the Tata Trust Scholarship for Women, reflecting her academic excellence and research potential.

Core Expertise

- Molecular Docking & MD Simulations
- AI/ML for Virtual Screening & Drug Repurposing
- Structural Bioinformatics & Immunoinformatics
- RDKit, DeepChem & Cheminformatics
- Python for Biological Data Analysis
- Whole-Genome Analysis

Google Scholar: <https://scholar.google.com/citations?hl=en&user=UDPFzpsAAAAJ>



Dr. Bhupender Singh

AI/ML, Bioinformatics & Computational Drug Design Specialist

CRO Scientist & AI-ML Trainer, Biotechnika Info Labs Pvt. Ltd. | Ph.D. Bioinformatics, Lovely Professional University

Dr. Bhupender Singh currently serves as a CRO Scientist and AI-ML Trainer at Biotechnika Info Labs Pvt. Ltd., where he trains professionals in AI/ML for Computational Biology, NGS, and multi-omics data analysis, while contributing to contract research and industry-oriented scientific projects.

He holds a Ph.D. in Bioinformatics from Lovely Professional University with specialisation in Machine Learning and in-silico Drug Discovery. He has nearly a decade of research experience in Bioinformatics, including a prior role at the Bioinformatics Centre, CSIR-Institute of Microbial Technology (IMTECH), Chandigarh, where he contributed to high-impact national projects.

His expertise spans AI/ML model development for biological datasets, cheminformatics, in-silico drug discovery, protein sequence and structural analysis, database development, and Python/R-based bioinformatics workflows. He has authored 20+ peer-reviewed publications with 700+ citations and an h-index of 10, contributed to book chapters in machine learning, drug discovery, metagenomics, and omics sciences, and served as a peer reviewer for scientific journals for over three years.

At Biotechnika, Dr. Bhupender is passionate about mentoring aspiring professionals and helping them build industry-ready skills in AI, machine learning, bioinformatics, and computational life sciences.

Core Expertise

- AI & Machine Learning in Life Sciences
- Computational Biology & Bioinformatics
- NGS & Multi-omics Data Analysis
- Python & R for Biological Data Science
- Cheminformatics & In-silico Drug Discovery
- Protein Sequence & Structural Analysis

Google Scholar: <https://scholar.google.co.in/citations?hl=en&user=705KZLIAAAAJ>

Eligibility

Who Should Enrol

This programme is ideal for:

- Life science graduates — BSc, MSc, MTech, PhD
- Biotechnology and bioinformatics students
- Pharmacy graduates
- Computational biology enthusiasts
- AI/ML learners wanting domain specialisation in life sciences
- Research scholars
- Industry professionals in biotech and pharma
- CSIR-NET and DBT aspirants exploring applied AI careers
- Founders building biotech AI startups

Basic Requirements

- Basic understanding of biology (helpful but not mandatory)
- No prior coding required — Python is taught from scratch
- Laptop with internet connection

Certification

Participants who meet all three requirements below will receive a Completion Certificate in Agentic AI for Drug Discovery & Biotechnology:

- 01** Complete all assignments during the 60-day programme
- 02** Build and complete a capstone project from the 30 available options
- 03** Publish your GitHub portfolio with all project repositories

Tools, Platforms & Programme Benefits

Tools & Platforms Covered

Platform	Platform	Platform	Platform
Google Colab	Python	Pandas	Matplotlib
RDKit	PubMed (NCBI E-utilities)	UniProt API	PDB
ChEMBL	Open Targets	Hugging Face	Gradio
GitHub	Hetionet	ClinVar	GEO / SRA

Key Programme Benefits

- Structured 60-day roadmap with clear milestones
- Recorded sessions you can revisit at your own pace
- Live doubt-solving sessions for real-time support
- Hands-on implementation with real biological datasets
- API-based practical learning — not just theory
- Deployment training — ship your agents as web apps
- 30 capstone project options with defined objectives and timelines
- GitHub portfolio building support throughout the programme
- Career guidance session in the final module
- Q&A and troubleshooting sessions throughout

What You Will Be Able to Do After Training

By the end of this programme, you will be able to:

- Build autonomous AI agents for biological tasks
- Automate PubMed and scientific database research
- Create target validation workflows
- Design molecule screening pipelines
- Perform ADMET analysis programmatically
- Develop RAG-based literature agents
- Deploy biotech AI tools as web applications
- Publish reproducible projects on GitHub
- Critically evaluate AI-drug discovery claims

You will move from: AI user → AI builder → AI architect for biotech.

AI will not replace biologists.

But biologists who build AI agents will replace those who do not.

Become the next-generation AI-enabled biotech professional.

Tools & Platforms You Will Work With

Hands-on exposure to industry-relevant bioinformatics, drug discovery, AI, deployment, and interpretability tools

1

Bioinformatics & Biomedical Databases



National Center for Biotechnology Information

PubMed, ClinVar, SRA, Entrez



Gene Expression Omnibus



Protein Data Bank



UniProt Consortium



Open Targets



ChEMBL



DisGeNET



STRING



PubChem

2

Drug Discovery & Molecular Modeling Tools



RDKit



AutoDock Vina



SwissADME



SwissTarget Prediction



ProtParam



ProtScale



DeepChem

3

Agentic AI & Multi-Agent Frameworks



LangChain



LangGraph



Microsoft AutoGen



CrewAI



Ollama



Hugging Face (Transformers)

4

Vector Databases & Retrieval Systems



FAISS



Chroma



Weaviate

5

Model Deployment & MLOps Tools



Docker



FastAPI



MLflow



Gradio

6

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