

Research Projects at JUIT

S. No.	Department	Project	Funding agency	Grant (Rs. In Lakhs)	Status
1	Biotechnology and Bioinformatics	Cytogenetic evaluation, molecular characterization and improvement of some promising cultivars of turmeric and ginger through biotechnological methods	DST	10.00	Completed
2	Biotechnology and Bioinformatics	Development of a bioremedial system for diesel contaminated sites in South-Western areas of H.P.	DST	2.50	Completed
3	Biotechnology and Bioinformatics	Biomolecules from Tamarind indicus & Terminalia arjuna influencing Mineralization/ Demineralization processes and their role in management of renal calculosis	DST	18.00	Completed
4	Biotechnology and Bioinformatics	Study of population structure of Podophyllum hexandrum using biochemical and molecular markers	DST	14.00	Completed
5	Biotechnology and Bioinformatics	Development of technologies for bioconversion of lignocellulosic waste from herbal industries for developing commercially viable products	AyurVet Ltd.	5.00	Completed
6	Biotechnology and Bioinformatics	Bioprospecting of buckwheat (Fagopyrum tataricum) for novel genes & metabolites of medicinal and nutritional importance	DBT	40.60	Completed
7	Biotechnology and Bioinformatics	Development of candidate gene markers for Jatropha by utilizing genome resources of castor bean	DBT	59.50	Completed
8	Biotechnology and Bioinformatics	Development of a bioleaching strategy for sustainable disposal and recycling of electronics-waste	MoE	19.70	Completed
9	Biotechnology and Bioinformatics	Identification of low curcumin genotypes of Jatropha and their utilization in developing candidate gene markers	DRDO	19.20	Completed

10	Biotechnology and Bioinformatics	Development of a standardized herbal product for urolithiasis from <i>Tribulus terrestris</i> and <i>Achyranthes aspera</i>	DBT	26.20	Completed
11	Biotechnology and Bioinformatics	Exploring the role of matrix protein(s) from calcium oxalate stones in nephrolithiasis and assessment of their molecular interactions with calcium oxalate monohydrate (COM) crystals in silico	ICMR	8.40	Completed
12	Biotechnology and Bioinformatics	Formulation of an antidepressant/stress reliever drug based on St John's Wort (<i>Hypericum perforatum</i>)	DRDO	15.00	Completed
13	Biotechnology and Bioinformatics	Identification of genetically superior strains of medicinal plants (<i>P. kurroa</i> and <i>Valeriana jatamansi</i>) from North-Western Himalayas of India	Ministry of Health, GOI	16.50	Completed
14	Biotechnology and Bioinformatics	Computational Identification, Evaluation and in vivo Validation of Vaccine Candidates from Bioweapon Toxins, and Selected Potential Bacterial Bioweapons (PBBWs)	DRDE	9.40	Completed
15	Biotechnology and Bioinformatics	Genetic characterization, chemical profiling and optimization of parameters for Artemisinin yield in <i>Artemisia annua</i> from the Ladakh region	DRDO	9.50	Completed
16	Biotechnology and Bioinformatics	Production of Nutraceuticals from Mahua Flowers	TRIFED	7.00	Completed
17	Biotechnology and Bioinformatics	The potential of human embryonic stem cells in developmental toxicity testing	DBT	17.20	Completed
18	Biotechnology and Bioinformatics	Antioxidants and Lantadene A Hybrid compounds as anticancer agents	DBT	7.60	Completed
19	Biotechnology and Bioinformatics	Identification and functional characterization of proteins as key/rate-limiting enzymes in the biosynthesis of desired chemical constituents of target plant species	DBT	60.70	Completed

20	Biotechnology and Bioinformatics	Identification of elite chemotypes and optimization of differential accumulation conditions for major & desired chemical constituents of three medicinal plants species	DBT	70.80	Completed
21	Biotechnology and Bioinformatics	Identification of intermediate metabolites for linking missing links in the biosynthetic pathways of desired chemical constituents in target plant species	DBT	68.65	Completed
22	Physics & Material Science	Design of Ultralow Sidelobe Level Microstrip Antenna Array in X-Band	Directorate of ER&IPR	19.00	Completed
23	Pharmacy	Design, synthesis and evaluation of Lantadene A – antioxidant conjugates as anticancer agents	DST	12.00	Completed
24	Biotechnology and Bioinformatics	Physico-chemical studies of drug-surfactant interactions in aqueous alcoholic solutions	DST	6.40	Completed
25	Biotechnology and Bioinformatics	Structural, functional and evolutionary analysis of repair pathways with special relevance to human disease	DST	13.20	Completed
26	Electronics & Communication Engg.	Design and analysis of frequency selective surface at Ka/Ku Band for reflection and S Band for transmission	ISRO	15.96	Completed
27	Biotechnology and Bioinformatics	Design, synthesis and evaluation of antibacterial peptidomimetics	DST	18.00	Completed
28	Biotechnology and Bioinformatics	Nucleotide diversity in granule bound starch synthase-I (GBSS-I) metabolic pathway genes and its association with starch quality in elite Indian rice genotypes	DST	16.00	Completed

29	Biotechnology and Bioinformatics	Toxicological evaluation of herbal formulations: (a) herbal performance enhancing capsules (PerfoMax), (b) herbal adaptogenic appetizer, (C) herbal tea and (D) seabuckthron oil based soft gel capsule	DRDO	8.50	Completed
30	Biotechnology and Bioinformatics	Development of Business Intelligence Model of Army Personnel's at Higher Altitude	DRDO	9.90	Completed
31	Electronics & Communication Engg.	Fabrication of energy Harvesting Prototypes using Piezoelectric Materials	DRDO	9.80	Completed
32	Biotechnology and Bioinformatics	Characterization of the antilithiatic proteins from Tamarindusindica and Terminaliaarjuna and evaluation of their cytoprotective role on oxalate-induced renal tubular epithelial cell injury	DST	50.00	Completed
33	Biotechnology and Bioinformatics	Development of a multicompartiment in vitro model of the human gastrointestinal tract	DBT	45.40	Completed
34	Biotechnology and Bioinformatics	Development of a polyherbal preparation to treat ethanol abstinence syndrome.	DST	24.85	Completed
35	Biotechnology and Bioinformatics	Genetic analysis to avoid inbreeding of the endangered western tragopan in the aviaries of Himachal Pradesh	DST	11.20	Completed
36	Biotechnology and Bioinformatics	Identification of Macrophage Invasion Protein(s) of Atypical Mycobacteria M. fortuitum as Potential Drug Target and Inhibitors Thereof	DST	17.40	Completed
37	Biotechnology and Bioinformatics	Identification of Single Nucleotide Polymorphisms in the transcriptional regulatory region of autophagy gene, ULK1 and their role in susceptibility to chronic hepatitis B virus infection	DBT	18.00	Completed
38	Biotechnology and Bioinformatics	Probiotics to prevent infection of Cronobacter sakazakii in neonatal mouse model	DBT	42.15	Completed

39	Biotechnology and Bioinformatics	Ramanujan Fellowship	DST	73.00	Completed
40	Mathematics	Investigation on residual life time and inactivity time of coherent systems.	National Board for Higher Mathematic	9.62	Completed
41	Pharmacy	Polyunsaturated fatty acid and anticancer drug conjugates as selective tumor targeting agents	ICMR	22.00	Completed
42	Physics & Material Science	Shared Aperture Microstrip Antenna Array for L and S Band	CSIR	16.40	Completed
43	Physics & Material Science	Synthesis of Magnetite Nanoparticles on Substrates for Water Purification	DST	11.82	Completed
44	Biotechnology and Bioinformatics	Establishment of an assay using human embryonic stem cell derived cardiac precursors from KIND2 cells for cytotoxicity testing	DBT	45.67	Completed
45	Biotechnology and Bioinformatics	Identification and validation of sex linked markers in seabuckthorn	DRDO	10.00	Completed
46	Biotechnology and Bioinformatics	Autophagy genes (Atg16L1 and IRGM) single nucleotide polymorphisms in the susceptibility of chronic hepatitis B virus infection	DST	24.00	Completed
47	Biotechnology and Bioinformatics	Bioremediation of electronic waste (E-waste) for precious metal recovery and removal of polybrominated diphenyl ethers (PBDE's)"	DBT	33.20	Completed
48	Biotechnology and Bioinformatics	Comparative genomics of diarrheal pathogens to identify vaccine candidates and study of various antibiotic resistance mechanisms.	DST	23.11	Completed
49	Biotechnology and Bioinformatics	Development of an in vitro gut model to study the survival of probiotics in mixed microbial consortia	DBT	42.00	Completed
50	Biotechnology and Bioinformatics	Development of Gene Markers for High Seed Oil Content and Dissecting Molecular Basis of Female Flower Development in J. curcas Towards its Genetic Improvement for High Seed Yield	DBT	98.00	Completed

51	Biotechnology and Bioinformatics	Development of herbal product for urolithiasis from Tribulus terrestris	DBT	52.23	Completed
52	Biotechnology and Bioinformatics	Development of inhibitors to target glyoxylate and methylcitrate cycles essential for persistence of Mycobacterium tuberculosis	ICMR	16.00	Completed
53	Biotechnology and Bioinformatics	Identification of Macrophage Invasion Protein(s) of Atypical Mycobacteria M. fortuitum as Potential Drug Target and Inhibitors Thereof	DST	17.40	Completed
54	Biotechnology and Bioinformatics	Identification, characterization of diarrhoeagenic pathogens in Himachal Pradesh	ICMR	16.00	Completed
55	Biotechnology and Bioinformatics	Investigating the role of thymus in mediating host immune modulation in visceral leishmaniasis	DST	27.00	Completed
56	Biotechnology and Bioinformatics	Mass spectrometric identification of matrix protein(s) from calcium oxalate stones in nephrolithiasis and assessment of their activity on calcium oxalate crystal-mediated stress in renal epithelial cells	ICMR	17.00	Completed
57	Biotechnology and Bioinformatics	Novel quorum sensing modulators against biofilm forming Cronobacter sakazakii	DST	26.00	Completed
58	Civil Engineering	Effect of stream-wise spacing of circular bridge piers on flow characteristics and local scour	DST	9.88	Completed
59	Biotechnology and Bioinformatics	Elucidating the linkage between key limiting processes and microorganisms during anaerobic degradation of lignocellulosic waste	DST & Russian Foundation for Basic Research	24.00	Completed
60	Biotechnology and Bioinformatics	A Bioinformatic and experimental approach to investigate the interaction between acetylcholinesterase (AChE) and angiotensin-converting-enzyme (ACE) along with Alzheimer's disease associated proteins	ICMR	25.66	Completed

61	Physics & Material Science	Development, characterization & processing of quantum dots for imaging in near infrared (NIR) range	SERB, DST	24.80	Completed
62	Electronics & Communication Engg.	Mathematical modeling of spectrum sharing technology in cognitive radio networks.	ISRO	11.10	Completed
63	Electronics & Communication Engg.	Reliability Modeling and Optimized Planning of Risk-based Resilient Networks	DST	9.04	Completed
64	Biotechnology and Bioinformatics	Synthesis of Novel Poly-N substituted Glycines (Peptoids) based on Cell selective Antimicrobial Peptides for Gram Negative and Gram Positive Bacterial Infections	ICMR	24.34	Completed
65	Biotechnology and Bioinformatics	Socio-economic upliftment of high altitude farmers of Himachal Pradesh through transfer of micro-propagation technologies for high value medicinal herbs	SEED-DST	14.16	Completed
66	Physics & Material Science	Semiconducting chalcogenide quantum dots for exploiting the power of solar energy	SERB, DST	16.99	Completed
67	Computer Science & Engineering	Early Forest Fire Detection	SCSTE	6.18	Completed
68	Biotechnology and Bioinformatics	Biogas production for sustainable energy generation in rural HP using one stage portable digester	SCSTE	7.87	Completed
69	Biotechnology and Bioinformatics	Microbial Interventions for generating renewable bio-energy in Himachal Pradesh using Pine needle forest litter	SCSTE	5.80	Completed
70	Biotechnology and Bioinformatics	Physico-chemical Study of Flavonoid -Surfactant Interaction: Utilization in Neomycin Topical Formulation	SERB, DST	22.50	On going
71	Physics & Material Science	Indo-German project on magnetic thin films for spintronic device applications	DST-DAAD	11.72	Completed
72	Computer Science & Engineering	IOT enabled fencing system to control monkey menace in Shimla (urban areas of HP)	HIMCOSTE	7.5	Completed

73	Physics & Material Science	Catalytic nanoparticle based graphene devices for the selective detection of industrial gases	HIMCOSTE	7.98	Completed
74	Physics & Material Science	Hydrogen storage using 2D chalcogenide and graphene layered materials	SERB, DST	32.22	On going
75	Physics & Material Science	Enhancing the thermal stability of Chalcogenide Phase-change materials for switching and memory applications	SERB, DST	20.06	On going
76	Computer Science & Engineering	Identification of Diseases of Tomato Using Image Processing Techniques for the Farmer of Himachal Pradesh with Feedback System Using IoT and Android Application	DEST, HP	9.96	On going
77	Electronics & Communication Engg.	Design and analysis of a thermoelectric generator for energy harvesting system from waste heat for the state of HIMACHAL PRADESH	HIMCOSTE	5.24	Completed
78	Civil Engineering	Chief Minister's Startup/ Innovation Projects (TIEDC)	Dept of Industries, H.P.	60	On going
79	Biotechnology and Bioinformatics	To investigate the effect of Urtica Dioica on Maternal Diabetes induced neuronal dysfunction in the offspring	ICMR	5	Completed
80	Biotechnology and Bioinformatics	DBT Skill Vigyan	HIMCOSTE	49.8	On going
81	Biotechnology and Bioinformatics	P.G. Teaching Program	DBT		
82	Biotechnology and Bioinformatics	Programme support on elucidation of biosynthetic pathways and development of gene markers for high value endangered medicinal herbs of nw himalayas (Phase-II)	DBT	332 lakhs and 32 thousand	Completed
83	Biotechnology and Bioinformatics	Identification, inhibition mechanism analysis and validation of novel multi-target inhibitors for Alzheimer's disease using polypharmacology and Systems pharmacology approaches	ICMR	14.5	On-going