

RAJIV GANDHI CENTRE FOR BIOTECHNOLOGY

LIST OF PhD THESES

Sl No	Title	Name of Student	Name of the Research Guide	Branch of Study	Year of submission	Year in which awarded
1	Functional role for the Goat Uterine Nuclear Estrogen Receptor in Post-Transcriptional control mechanisms	Thomas Sebastian	Dr. R V Thampan	Biotechnology	Nov-00	May-01
2	Molecular mechanisms associated with the Plasma Membrane - To - Nucleus Movement of the Goat Uterine Non- Activated Estrogen Receptor	Sreeja, S	Dr. R V Thampan	Biotechnology	Dec-00	Aug-01
3	Hepatitis C Viruses (HCV): Studies on Viral Genotypes and its Role in HepatoCellular Carcinoma	Chetan Datta Poduri	Dr. M R Das	Biotechnology	Feb-01	Oct-01
4	Molecular signatures of Tribal Populations in Kerala based on DNA Finger printing	Anitha, A	Dr. Moinak Banerjee	Biotechnology	Jun-02	Mar-03
5	Molecular Alterations of SMAD 2 and SMAD 4 in Human Cervical cancer	Tessy Thomas Maliekal	Dr. Karunagaran	Biotechnology	Oct-02	Aug-03
6	Endoplasmic Reticulam-To-Nucleus movement of the Goat Uterine Estrogen Receptor Activation Factors: Identification of the key Proteins involved	Anitha P Govind	Dr. R V Thampan	Biotechnology	Oct-02	Dec-03
7	IS6110 fingerprinting of clinical isolates of Mycobacterium tuberculosis and the development of a system to study the mechanisms of pathogenicity.	Indu Lakshmi Radhakrishnan	Dr. Sathish Mundayoor	Biotechnology	Mar-03	Dec-03

8	Active Site Mapping of Calcium/Calmodulin Dependent Protein Kinase Type II	Praseeda, M	Dr. R V Omkumar	Biotechnology	Jun-03	Dec-03
9	Molecular Genetic Analysis of Hereditary Deafness among Kerala population: Role of Myosin 15 and Connexin 26 genes	Anu Yamuna Joseph	Dr. T.J. Rasool	Biotechnology	Jul-03	May-04
10	Molecular characterization of Avian Cytokines	Sreekumar, E	Dr. T.J. Rasool	Biotechnology	Dec-03	May-04
11	Molecular Mechanism of Curcumin Action in Cells	Rashmi, R	Dr. Karunagaran	Biotechnology	2003	Dec-04
12	Study on the Regulation of Nuclear factor Kappa B Expression in Human Cervical cancer	Venkatraman, M	Dr. Karunagaran	Biotechnology	Dec-03	Feb-05
13	Molecular characterization of 3-Hydroxy-3-Methylglutaryl-CoA Reductase and 1- Deoxy - D-Xylulose - 5- Phosphate Synthase Gene from phosphate Andrographis paniculata (Burm.f.) Wall.ex Nees	Seetha, K	Dr. N.S Banerjee	Biotechnology	Jun-04	Jun-05
14	Design Synthesis and characterization of new Polymeric support for solid phase peptide synthesis	Leena, S	Dr. K. Santhosh kumar	Chemistry	Dec-04	Dec-05
15	Molecular characterization of major Cytokines of Indian water Buffalo	Avinash Premraj C	Dr. T.J Rasool	Biotechnology	May-05	Dec-05
16	Immunogenetic Profiling and Disease Association of HLA Class India 1 Genes in different population of Kerala	Rashmi Thomas	Dr. Moinak Banerjee	Biotechnology	Jul-05	Mar-06
17	Effects of major Organosulfur Compounds from Garlic on Proliferation and Apoptosis of cancer cells	Suby Oommen	Dr. Karunagarn	Biotechnology	Jun-05	Apr-06
18	Molecular characterization and varietal	Sreejayan	Dr. George Thomas	Biotechnology	Nov-05	Aug-06

	identification in 'njavara' a traditional medicinal rice (<i>Oryza sativa</i> L.) in Kerala, India					
19	Mapping of functions on Calcium/Calmodulin: Dependent Protein Kinase Type II	Pradeep K K	Dr. R V. Omkumar	Biotechnology	Jul-05	Nov-06
20	Genome Organization of Field Strains of Mycobacterium Tuberculosis	Suma, S	Dr. Sathish Mundayoor	Biotechnology	Mar-05	Nov-06
21	Resistance Gene candidates from Zingiber spp: Isolation, characterization and expression analysis	Aswati Nair S	Dr. George Thomas	Biotechnology	Apr-06	Nov-06
22	Hepatoprotective Action of Lygodium Flexuosum(L.) SW.. From Traditional Medicine to Molecular Biology	Wills, P J	Dr. Asha V V	Biotechnology	Mar-06	Dec-06
23	Molecular Charecterization of NS 3 Serine Protease and RNA dependent and " RNA Polymers of Hepatitis C Virus, sub type b"	Prasanth V	Dr. Sugunan	Biotechnology	Feb-06	Apr-07
24	Molecular charecterisation of field strains of Mycobacterium tuberculosis	Manju Y K	Dr. Sathish Mundayoor	Biotechnology	May-06	Jun-07
25	Structure - Function Relationships in the Interactions between Calcium/ Calmodulin Dependent Protein Kinase Type II (CaMKII) and N-Methyl-D-aspartate Receptor (NMDAR) sub units	Rajeev Kumar R	Dr. R V. Omkumar	Biotechnology	Apr-06	Aug-07
26	Studies on Genomic diversity and genotype associated virulence factors in clinical and environmental isolates of vibrio cholerae 0139 strains	Bhanumathi R	Dr. D V Singh	Biotechnology	Aug-06	Oct-07
27	Studies on a cytotoxic factor produced by a clinical strain of Vibrio cholerae 054	Sree Ranjini Isac	Dr. D. V. Singh	Biotechnology	Dec-06	Oct-07

28	A Study on Transforming Growth factor Beta Signalling In Human Overian Cancer	Marie Lue Antony	Dr. D. Karunagaran	Biotechnology	Jan-07	Jan-08
29	Potential Role of Curcumin, The Yellow Pigment of Turmeric(<i>Curcuma longa</i>) in Sensitizing the conventional Chemotherapeutic drugs	Smitha VB	Dr Ruby John Anto	Biotechnology	Apr-07	Feb-08
30	Functional studies on the goat uterine estrogen receptor activation factor	Julie Jacob	Dr. R V Thampan	Biotechnology	Oct-06	Mar-08
31	Molecular analysis of vibrio cholerae 01 EL TOR strains isolated from Kerala, India	Dhanya Ramachandran	Dr. D. V. Singh	Biotechnology	Feb-07	Mar-08
32	Type III polyketide synthases - Its genomic analysis in Zingiberaceae, significance in ginger in relation to gingerol and potential applications	Radhakrishnan E K	Dr. Soniya E. V	Biotechnology	Aug-07	Apr-08
33	Population dynamics, molecular phylogeny and charecterization of antimicrobial peptides of teak defoliator (<i>Hyblae puera carmer</i>)	Chandrasekhar, R	Dr. Moinak Banerjee	Biotechnology	Nov-07	May-08
34	Studies on the pharmacological and toxicological properties of <i>cardiospermum</i> Linn. extracts/active fractions keeping in view with standardized phytomedicine development	Sheeba, M S	Dr. Asha V V	Biotechnology	Oct-07	Jun-08
35	Cloning of β -1, 3- glucanase from ginger (<i>Zingiber officinale</i> Rose) and studies on its modulation during <i>pythium aphanidermatum</i> infection	Deepty Antony	Dr. G. Purushothama	Biotechnology	Jul-07	Oct-08
36	A Study on the nuclear abnormalities induced by smad3 or RelA and HeLa cells	Goodwin Jinesh G	Dr. D. Karunagaran	Biotechnology	Jan-08	Nov-08
37	Development of phenotypically normal transgenic potatocytokinins (<i>Solanum tuberosum</i>) plants	Nisha K K	Dr. G. Purushothama	Biotechnology	Mar-07	Nov-08

	overproducing					
38	Development of Microsatellite markers and AFLP analysis for genotyping the cultivars of black pepper (Piper nigrum L.)	Nisha Joy	Dr. E. V. Soniya	Biotechnology	Aug-08	Dec-08
39	Regulatory role of curcumin on the carcinogenic effect induced by ingredience of cigarette smoke	Vinesh kumar T P	Dr. Ruby John Anto	Biotechnology	Nov-07	Mar-09
40	Genetic Transformation studies in Cucumis Sativus for Expressing Immunogenic Proteins	Sindhu C Unni	Dr. Soniya E V	Biotechnology	Apr-08	Mar-09
41	Molecular Studies on Plants- Derived agents which display Antiosteoporosis and anticancer properties	Sebastian K S	Dr. R V Thampan	Biotechnology	Apr-08	Apr-09
42	Study of Microtubule Assembly by some Microtubule Nucleation Promoters	Nisha Elizabeth Thomas	Dr. Suparna Sen Gupta	Biotechnology	Aug-08	Jun-09
43	Structural and functional studies of the goat bone marrow RNA dependent RNA polymerase	Lakshmi Priyadarsini	Dr. R V Thampan	Biotechnology	Mar-08	Jul-09
44	Genetic variation in wild gingers (Zingiberaceae) for resistance to response Pythium infection and analysis of differentially expressed transcripts in hosts with different levels of pathogen	Kavitha P G	Dr. George Thomas	Biotechnology	Dec-07	Aug-09
45	Functional implications of the interaction between CA2+/ Calmodulin dependent protein kinase type II and N-Methyl-D-aspartate receptor subunit 2B	John Cheriyan	Dr. R V. Omkumar	Biotechnology	Aug-08	Sep-09
46	Identification of the Functional Role of Estrogen Receptor Activation Factor and Zinc Finger Protein-99 in Steroid Regulated Gene Expression	Mohamed Febin Farook	Dr. R V Thampan	Biotechnology	Jan-09	Nov-09
47	Pharmacogenetic Profiling for Theranostic Evaluation of Schizophrenla in a South Indian	Neetha N V	Dr. Moinak Banerjee	Biotechnology	Feb-09	Jan-10

	Population					
48	Functional Analysis of Duck (ANAS PLATYRHYNCHOS) CC Chemokines on Antibacterial and Antiviral Defense	Arathy D S	Dr. E Sreekumar	Biotechnology	Nov-08	May-10
49	Identification and biological characterization of ApAvBD2- A Novel Beta-Defensin antimicrobial peptide of avian origin	Soja Saghar S	Dr. E Sreekumar	Biotechnology	Jul-09	Aug-10
50	Cellular effects of plumbagin in BRCA1 blocked ovarian cancer cells	Thasni K A	Dr. Priya Srinivas	Biotechnology	Feb-09	Aug-10
51	Interaction of Calcium/Calmodulin dependent protein kinase type II with neuronal Ion channel proteins - Implications in kinase catalysis and regulation by phosphates	Suma Priya	Dr. R V Omkumar	Biotechnology	Jun-09	Oct-10
52	Genetic Dissection of Intracranial Aneurysms in South Indian Population	Linda Koshy Vaidyan	Dr. Moinak Banerjee	Biotechnology	Aug-09	Nov-10
53	Identification and characterization of Lipid Rafts and Taft Associated Proteins on Mammalian Spermatozoa	Mohammed Shoeb	Dr. Pradeep kumar G	Biotechnology	Dec-09	Dec-10
54	Role and relevance of plastidial and cytosolic isopentenyl diphosphate (IPP) overproduction on bacoside content of Brahmi [Bacopa monnieri(L.) Wettst.]	Lakshmi Mahadevan	Dr. PurushothamaM G	Biotechnology	Feb-10	Feb-11
55	Albumin of Epididymal Origin: Synthesis, secretion and possible regulatory functions	Deepa Mathew	Dr. R V Thampan	Biotechnology	Jun-10	Apr-11
56	Evaluation of the Synergistic Effect of Paclitaxel and curcumin in carcinogen- Induced and Xenograft models of Cervical Carcinogenesis in	Sreekanth C N	Dr. Ruby John Anto	Biotechnology	Apr-10	Jun-11

	Mice					
57	Study of Diaminotiazoles in cancer cells and in Microtubule system	Smitha S L	Dr. Suparna Sen Gupta	Biotechnology	Apr-10	Jun-11
58	A Study of Hippocampal Neurogenesis associated with Temporal Lobe Epilepsy and the Role of Notch Signalling in Transcriptional Regulation of TLX3, a Selector Gene involved in Excitatory versus Inhibitory Fate Specification	Indulekha C L	Dr. Jackson James	Biotechnology	Aug-10	Sep-11
59	Evaluation of Nuclear presence and DNA binding ability of Son of sevenless 1 to elucidate its function in pregnancy	Zyju D P	Dr. Malini Laloraya	Biotechnology	Nov-10	Nov-11
60	Isolation and characterization of native transcription machinery for genetic transformation studies in <i>Piper nigrum</i> L.	Maju T T	Dr. Soniya E V	Biotechnology	Jul-11	Jan-12
61	Bioprospecting of Selected Medicinal Plants for Hepatoprotective and Anti-Viral Molecules and Construction of a Screening System for High Throughput Anti-HBV Drug Screening	Suresh V	Dr. Asha V V	Biotechnology	May-11	Jan-12
62	Investigation of functional Role of CKS1, a Subunit Associated with Proteasome Machinery, in Cancer Cell Cycle and its Significance in Cancer Chemotherapy response and Oral Cancer Progression	Anand Krishnan	Dr.S. Asha Nair	Biotechnology	Mar-11	Jan-12
63	Molecular and functional characterization of testes expressed NOX in relation to sperm development	Ambika Chandrasekhar	Dr. Pradeep Kumar G	Biotechnology	Apr-11	Jan-12
64	Molecular Characterization of the environmental strains of <i>Vibrio cholerae</i> isolated from the aquatic sources in Southern Kerala	Praveen Kumar P P	Dr. Sabu Thomas	Biotechnology	Nov-10	Feb-12

65	Characterization of regulatory pathways involved in the maintenance and differentiation of embryonic stem cell derived neural progenitors and their potential use in regenerative therapy for temporal lobe epilepsy	Sanalkumar R S	Dr. Jackson James	Biotechnology	May-10	Mar-12
66	Study of the Mechanism of Action of a Diaminothiazole, A Potential Anticancer Agent	Thomas Sannu Ann	Dr. Suparna Sen Gupta	Biotechnology	Feb-11	Mar-12
67	mTOR mediated effect of essential amino acid Leucine and its role in estrogen action in MCF-7 breast cancer cell line	Sony Devassy	Dr. R V Thampan	Biochemistry	Apr-09	May-12
68	Endoplasmic Reticulum Stress Mediated Cell Death and Survival: Potential Role of Caspases and Bcl2 family proteins	Bhavya B C	Dr. T.R. Santhosh Kumar	Biotechnology	Nov-09	May-12
69	Cloning and characterisation of defence - related genes from Piper colubrinum by subtractive cDNA approach	Dicto Jose M	Dr. Manula S	Biotechnology	Apr-11	Jul-12
70	Identification of Testis-Expressed Cell Cycle Regulating Proteins with Special Reference to Meiosis	Uma Chandran	Dr. Pradeep kumar G	Biotechnology	Jun-11	Jul-12
71	The Cancer Stem Cell Code in Oral Tumorigenesis	Vineetha Richard	Prof. M. Radhakrishna Pillai	Biotechnology	Jun-11	Jul-12
72	Regulatory Interactions of Calcium/ Calmodulin Dependent Protein Kinase Type II with Substrates and Ligands	Mayadevi M	Dr. R. V. Omkumar	Biotechnology	Oct-11	Sept- 12
73	Selective Estrogen Receptor Modulator(SERM) Activity of Pomegranate (Punica Granatum L.): Implications for Estrogen Dependent Breast Cancer	Sreeja S	Dr. Sreeja S	Biochemistry	Dec-11	Oct-12
74	Cell- to- Cell Variability in Apoptotic Signalling Events Role of the cycle phases	Jeena Joseph	Dr. T R Santhosh Kumar	Biotechnology	Sep-11	Oct-12

75	Elucidation of Membrane - Initiated and Nucleus - Initiated Steroid Signaling Pathways in an Early Implantation Mouse Uterus	Renjini A P	Dr. Malini Laloraya	Biotechnology	Oct-11	Oct- 12
76	Development of Novel Biodegradable Polymer Systems for controlled Drug Release in Biomedical Applications	Lekha Nair K	Dr.Vinod Kumar G S	Chemistry	Oct-11	Jan-13
77	Development of a New Class of Solvent –like PEGylated Dendimer Polystyrene Resins for Solid Phase Organic Synthesis	Siyad M A	Dr. Vinod kumar G S	Chemistry	June -12	Mar-13
78	Understanding the 'modus operandi' of DOCK mediated signaling at embryo implantation.	Jasna J Mohan	Dr. Malini Laloraya	Biotechnology	Jun-11	May -13
79	A Reporter System to Detect the Activity of Neuronal Ca ²⁺ CHANNELS – Implications In High Throughput Screening for Agonists And Antagonists.	Mathew Stephen	Dr. R V Omkumar	Biotechnology	May -12	May -13
80	Effect and Mechanism of Action of Natural compounds on the growth of Mycobacterium tuberculosis in vitro	Divya Lakshmanan	Dr. Ajay Kumar	Biotechnology	Nov-11	June-13
81	A Study on Drug Resistance Pattern and Molecular Epidemiology of Clinical Isolates of Mycobacterium tuberculosis from Kerala	Biljo V Joseph	Dr. Satish Mundayoor	Biotechnology	Feb -12	June -13
82	Concentration Detection and Molecular charecterization of Human Immunodeficiency Virus, Hepatitis B Virus and Hepatitis C Virus from water and waste water.	Manoj Narayanan	Dr. Paul Murugan Dr. D Karunagaran	Biotechnology	Dec-11	July-13
83	Cellular Models to Charecterize Nonclassical Apoptosis Signalling Capable of Bypassing Drug Resistance Conferred by Bcl-2/Bcl-xL in Tumor Cells	Mahendra Servi	Dr. T R Santhosh kumar	Biotechnology	April -12	July-13

84	Interaction of Mycobacterium tuberculosis and macrophage: Studies on the down-regulation of the macrophage scavenger receptor by mycobacterial proteins and Comparative analysis of mycobacterial TrHb promoters and the groEL2 promoter	Sunil V J	Dr. Satish Mundayoor	Biotechnology	Feb -13	July -13
85	Heat Shock Proteins in the Regulation of Cancer Drug Resistance	Praveen K S	Dr. T R Santhosh kumar	Biotechnology	Aug - 12	July-13
86	Identification and functional Evaluation of Factors Regulating Testicular Germline Stem Cell Division and Differentiation	Indu S	Dr. Pradeep kumar G	Biotechnology	July -12	July -13
87	Regulatory Mechanisms of Nuclear factor Kappa B in Human Cancer Cells	Mani Sankar Babu	Dr. D Karunagaran	Biotechnology	May -12	Aug -13
88	Polyoxypropylene Crosslinked Polymer supports(Poly GEL): Design, Synthesis, Characterization and its application in conventional/ Microwave Assisted Polypeptide Synthesis.	Sachidanandan P	Dr. K. Santhosh Kumar	Chemistry	June -12	Sept-13
89	Mutation Analysis and Molecular Characterization of Drug resistant clinical Isolates of Mycobacterium Tuberculosis From Kerala	Anil kumar A K	Dr. Satish Mundayoor	Biotechnology	Sept -12	Nov -13
90	Design, Synthesis and Application of Polyoxyethylene Cross-Link Functionalised Polystyrene Support for Solid Phase Organic Synthesis	Manoj Kurian	Dr. K. Santhosh kumar	Chemistry	Sept -12	Nov -13
91	Identification of Effective and Non-Toxic Chemosensitizers, which can be used in Combination with the conventional Chemotherapeutic drugs used for Breast Cancer Treatment.	Vinod B S	Dr. Ruby John Anto	Biochemistry	Apr-13	Dec - 13
92	Genetic Predisposition to Schizophrenia in South Indian Population: An Immunogenetic Perspective	Lekshmi Srinivas	Dr. Moinak Banerjee	Biotechnology	Mar-13	Feb -14
93	Neural Differentiation of Embryonic and Umbilical	Divya M S	Dr. Jackson James	Biotechnology	Oct -13	Mar -14

	Cord Blood Derived Mesenchymal Stem Cells for Possible Cell Replacement Therapy in Glaucoma model.					
94	Hepatitis B Virus core VLP (Virus Like Particle) based vaccine delivery system for Tuberculosis	Dhanasooraj	Dr. Satish Mundayoor	Biotechnology	Jan-13	Mar- 14
95	Molecular Evidence for the Anticancer Activity of Plumbagin in BRCA1 Deffective Breast Cancer	Rakesh S	Dr. Priya Srinivas	Biotechnology	May - 13	Apr -14
96	Isolation, identification and functional characterization of a Mycobacterium tuberculosis protein with histone acetyltransferase activity.	Leny Jose	Dr. Ajay Kumar R	Biotechnology	Dec - 13	Apr -14
97	Identification of a novel NMDA receptor inhibitory plant extract with neuroprotective action	Soumya Paul	Dr. Omkumar	Biotechnology	Aug -13	May-14
98	Molecular characterization and <i>in silico</i> analysis of Pathogenesis-Related Osmotin (PR5) and Serine/Threonine Protein Kinase gene homologues from <i>Piper colubrinum</i> Link.	Thomson Mani	Dr. S. Manjula	Biotechnology	Aug -13	May -14
99	Identification and Characterisation of Genes of Mycobacterium Tuberculosis that are Induced during interaction with Host Cells	Madhavi Latha, GK	Dr. Satish Mundayoor	Biotechnology	Feb-13	May -14
100	Molecular studies on the Dengue virus strains from Kerala, South India	Anoop M	Dr. E. Sreekumar	Biotechnology	Sept-13	June -14
101	Functional Elucidation of a Ginger Calcium-dependent Protein Kinase Activated under Multiple Stress Responses	Vivek P J	Dr.Soniya E V	Biotechnology	Nov-13	Sept-14
102	Genetic Structure of cultivated rice(<i>Oryza sativa</i> L.) and its progenitor <i>Oryza rufipogon</i> Griff, in India	Dinesh Raj	Dr. George Thomas	Biotechnology	Jan-14	Sept-14
103	Identification, characterization and in planta functional elucidation of quinolone synthase, a Type III polyketide synthase from <i>Aegle marmelos</i> Corr.	Reshmi M S	Dr.Soniya E V	Biotechnology	Nov-13	Oct -14
104	Peptidomic analysis of the skin secreted antibacterial peptides of the frog <i>Clinotarsus curtipes</i> and their structure function studies	Parvin Abraham	Dr. Santhosh Kumar K	Biochemistry	Apr -14	Nov -14
105	Isolation, Charecterzation and Therapeutic	Veena	Dr. Priya Srinivas	Biotechnology	Sept-14	Mar -15

	interventions of Breast Cancer Stem Cells from BRCA1- defective breast cancer	Somasundaram				
106	Design and Development of PolyAlkyl Ether Based Multifunctional Dentric Nanocarrier for Target Specific Drug Delivery.	Aravind. A	Dr. Santhosh kumar	Pharmaceutica l Sciences	Oct-14	Mar-15
107	Synthesis Charecterization and Biological Evolution of Novel Nanoparticulate Drug Delivery Systems for Colon Cancer	Ashwani Kumar N	Dr. G.S. Vinod Kumar	Chemistry	July -14	Apr-15
108	Characterization of Fodrin as a Gamma – tubulin Associated Protein	Shashikala S	Dr. Suparna Sen Gupta	Biotechnology	Jan-14	Apr-15
109	DNA Fingerprinting and discrimination of the traditional medicinal rice “Njavara” from other traditional rice strains	Mariet Jose	Dr. George Thomas	Biotechnology	June -14	Apr-15
110	Molecular Evaluation of Anticancer Properties of the Active Principles from WRIGHTIA TINCTORIA	Jayesh Antony	Dr. Ruby John Anto	Biotechnology	Sept-14	Jul -15
111	Molecular analysis of mutualistic interaction between Centella asiatica and Priformospora indica and its effect on secondary metabolic production	Jisha S	Dr. Manjula S	Biotechnology	Nov-14	Jul-15
112	Evaluation of Molecular Defects in Polycystic Ovary Syndrome	Meera Krishna B	Dr. Malini Laloraya	Biotechnology	Oct -14	Aug -15
113	Functional analysis of Smad ubiquitin regulatory factor 2(Smurf2), a HECT E3 Ubiquitin ligase, in breast cancer	Diana David	Dr. Asha Nair	Biotechnology	Nov-14	Sept- 15
114	Development and evaluation of effective inhalable drug delivery system for the treatment of pulmonary tuberculosis	Mithun Varghese	Dr. Vinod kumar G S	Biotechnology	Jan -15	Oct -15