



**Shri Vithalrao Joshi Charities Trust's**  
**B. K. L. Walawalkar Rural Medical College**

Shri Vithalrao Joshi charities has been working since last 50 years for social upliftment of poor, main motives of trust “health for all, education for all and empowerment of all” to achieve these goals. It has one the most important objective is “to conduct research in priority areas of rural population which would lead positive policy changes” and focused efforts based on these objective fructified with the development of this Institute, which laid the seed to establish an ecosystem to encourage research and innovation. The ecosystem evolves with Collaborative research with various other research institutes in India and abroad.

For establishment of a research culture and promote initiatives for creation, transfer of knowledge incubation center is formed under guidance of SAC and Ethics committee. It has DSIR/SIRO recognition.

<b>Incubation Centre</b>
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**The primary objectives of Incubation center**

- To Train, counsel, guide and mentor the students and faculties in performing innovative translational research and setting up of the enterprise.
- To facilitate the scientific interactions between different Departments and its allied faculties to generate novel ideas.
- To provide infrastructure and state-of-art technology
- To test the hypothesis that could result in an invention.
- Inculcates research bent of mind among students to help them to be self -reliant and contribute to the nation building

**VISION**

The Incubation Centre with a vision to promote entrepreneurial spirit amongst students, and faculty members. The researchers if approached with newer concepts, college help these researchers to generate proof-of-concept through lab level experimentations and validate minimum viability of concept.

It covers the following processes:

1. Infrastructure and service provided to incubates
2. Mandatory Mentorship
3. Period of incubation
4. Intellectual Property evaluation

## 1. Resources Available For Incubates

- 1) **Molecular research Lab** for learning basics of Nucleic acid extraction, gel electrophoresis, separations proteins & immunoglobulin's from clinical samples ,Run under valuable guidance of **scientists from Tata Memorial Center** Carried out: Many hands on trainings of MBBS students, faculties
- 2) **Genomic laboratory & lateral flow immunoassay lab**  
Run under valuable guidance of **scientists from Tata Memorial Center -Molecular scientist, LFA lab (BIRAC)**
- 3) **Skill Lab**
- 4) **Tissue Culture Lab (BIRAC)**
- 5) **Research laboratory of Cohort with bio repository and Atomic Absorption –DST funded project laboratory**
- 6) **Central Research laboratory-With GC-MS facility & IFTR**

## RESEARCH AND INNOVATION ECOSYSTEM

Sr. No.	Type of Activity
1	Formation of Scientific advisory committee
2	Formation if Institutional ethics committee
3	SIRO and Institutional ethics committee registrations
4	Summary of activities carried out to develop research and Innovation Ecosystem
5	Establishment of facilities : Photos of Molecular Lab, Therapeutic Cell Culture Facility (TCCF) and Genomic Laboratory
6	Photos of workshop training conducted
7	Ethical committee approval letter and grant letter of projects
8	Patents
9	Publications

Step by step reaching towards institutional vision of nurturing “research and innovation” for benefit of rural underprivileged peoples

### A) Establishment of facility for creating ECOSYSTEM for research and innovation

1. Dr. M.G. Deo Molecular **Biology Laboratory**, established under the guidance of Dr. Rita Mulherkar, Scientist, Researcher, Administrator Ex. Chairman & Professor, Mulherkar Lab, ACTREC, Navi Mumbai.
2. Samarth krupa Life sciences Pvt. Ltd. GMP - Compliant **Therapeutic Cell Culture Facility (TCCF)** – Started on 8 October 2021, this facility is working on production of the medicinal product comprising of ex vivo expansion of autologous disc cells grown in human platelet lysate.

- The institute has started a **“Genomics Laboratory”** on 3<sup>rd</sup> June 2022, with the initiation of genomic studies at BKLWRMC under the guidance of Dr. Neelam Shirsat and Dr. Shripad Banavali, Tata Memorial Hospital, who are carrying out a project to develop a blood test for the early detection and monitoring of cancer patients.

## **B) Guest lecture on sensitization for seeking grants from DST**

- “Research Opportunities-Ministry of Science & Technology”** date, 11.12.2021, Dr. Vinita Sharma, Former Head, Scientist for Equity, Empowerment and Development Division (SEED), DST, India
- “Research in Onco -immunology”** Lecture by Dr. Narendra Chirmule (S&R& D-Biocon Limited). Date: 12.02.2022
- Guest lecture **“Svante Pääbo:” Nobel Prize in Physiology or Medicine, 2022**  
Impact of the genome of extinct hominin species on evolution and medicine  
By Dr. Neelam Shirsat (Molecular Biologist) , ACTREC
- “GENOMIC INDIA PROJECT”** is arranged on 2nd July 2022 (Saturday), at 1 lam.,  
Speaker: Dr. Santosh Dixit, Senior Scientist, IISER, Pune

## **c) List of Projects / Research work -**

<b>Sr. No.</b>	<b>Project title</b>	<b>Name of faculty</b>	<b>Funding Agency</b>	<b>Facility</b>
1	A project entitled “New Directions For Research in Diabetes in India: The harbinger for future Diabetes - An Adolescent and preconception health perspective” – <u>DERVAN COHORT</u> funded by Rajiv Gandhi Science & Technology Commission Maharashtra state was started on 4 <sup>th</sup> Feb, 2019.	Dr. Suvarna Patil	Rajiv Gandhi Science and Technology Commission	RGSTC Cohort lab
2	A Phase I/II clinical trial to examine the safety and efficacy of autologous, cultured disc chondrocytes embedded in PRF transplanted in patients’ disc to maintain its function	Dr. Sunil Nadkarni	BIRAC , Tata House	Therapeutic Cell Culture Facility (TCCF)
3	"Liquid Biopsy for early detection and monitoring disease progression in Cancer"	Dr. Neelam Shirsat	BKLWRMC	Genomic Lab at incubation center
4	"Isolation and characterization of secretory FGAA from human milk form previously COVID-19 positive	Dr. Rita Mulherkar	BKLWRMC	Molecular Biology Laboratory at incubation

	mothers ‘and uninfected mothers’	Dr. Rohit Bhat Dr. Yogendra Shelke		center
5	Collaborative network for adolescent nutrition and health in sub-Saharan Africa and India ( <b>Talent</b> )	Dr. Suvarna Patil	Medical Research Council, UK	Therapeutic Cell Culture Facility (TCCF)
6.	Menstruation prediction kit development	Dr. Suvarna Patil	BIRAC	Lateral Flow Immunoassay lab at Incubation center
7	Correlates of the suicide crisis syndrome in major depression: A metacentric exploratory study	Dr. Ramdas Ransingh	Indian council of medical research	
8	Effectiveness of an intervention to address COVID-19 vaccine hesitancy among pregnant and lactating women: a multi-centric randomized controlled trial from India	Dr. Ramdas Ransing	Indian council of medical research	
9	A Multi-centric Randomized Controlled Trial to Assess the Effectiveness of Screening and a Brief Nurse-Delivered Intervention for Depression in Pregnancy	Dr. Ramdas Ransing	Indian council of medical research	
10	To demonstrate proof of concept for autologous regenerative therapy using platelet rich fibrin enriched with human herniated intervertebral disc tissue to enhance regeneration of human herniated intervertebral disc	Dr. Sunil Nadkarni	BIRAC	Therapeutic Cell Culture Facility (TCCF)

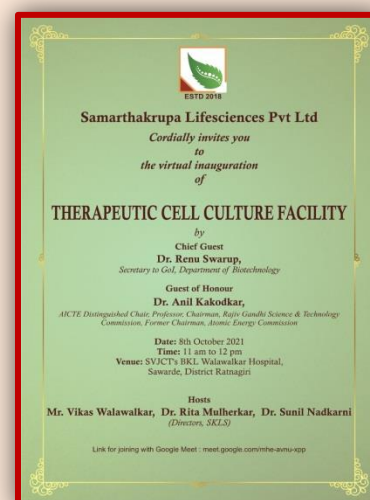
## Incubation center



## FIRST KONKAN Therapeutic Cell Culture Facility (TCCF)

Facility was inaugurated on 8 October 2021 by chief guest Dr.Renu Swarup (sec.to GOI/department of Biotechnology) and Guest of honor Dr. Anil Kakodkar (AICTE distinguished chair, Chairman Rajeev Gandhi Science & Technology Commission, Former Chairman, Atomic Energy Commission)

Low back pain due to degeneration of intervertebral disc (IVD) is a major health problem resulting in significant disability as well as adding to the economic burden. Discectomy is a very common procedure done worldwide to relieve this pain. At present, all the surgically removed disc tissue is mostly discarded. However, there are reports that



states that progenitor cells in the IVD can be grown ex-vivo and have the potential to be used for IVD repair and regeneration. We report that the viable cells can be harvested from surgically removed herniated disc tissue and can be potentially used in cell based therapy. To carry out this cell based therapy/ clinical trial, certain guidelines recommended by authorized agencies needs to be followed.

BKL Walawalkar Rural Medical College attached hospital which is a 600 bedded hospital with state of the art facilities is located in rural place at Sawarde. One more unique facility for this cell therapy has been added to this hospital i. e GMP compliant Therapeutic Cell Culture Facility. GMP or Good Manufacturing Practices, this system needs to have certain norms, certain activities which guarantee that the material which we are using is of good quality and is safe to go into the humans. There are certain designs and layout that has to be looked upon for constructing a GMP facility. This facility is fitted with air handling unit which provides clean air and also provides required



movement with appropriately designed heating, ventilation and air conditioning. In addition there are special quality panels and flooring which is required to maintain clean atmosphere. There is a pressure cascade where the air flows from process area which is the cleanest area in the GMP facility. Entry to this facility is restricted to the authorized personnel. This facility is created for manufacturing cells for the patients suffering from low back pain. In this facility the IVD tissue sample which is collected in operation theatre during surgery is processed. The biological material is passed through dynamic pass box and the personnel enter through change room. After downing of gown, cap mask, shoe cover and then enter into preparatory room. The biological material is collected

and the patient information is recorded. The biological material then passes through another pass box from preparatory room to process area where the sample is processed. Once the cells are grown they are photographed and when sufficient number of cells is achieved they are again transported to OT in cool box for injecting back into the patient. All the quality tests are done and recorded before injecting.



This unique therapy is expected to benefit the patient with back pain and help in faster recovery. This will be the first of the kind therapy in India which we propose to offer at an affordable price to patients in rural India. This facility is developed under the guidance of Dr. Rita Mulherkar (Scientist and former professor, ACREC, TMC) and Dr. Sunil Nadkarni (Spine surgeon)



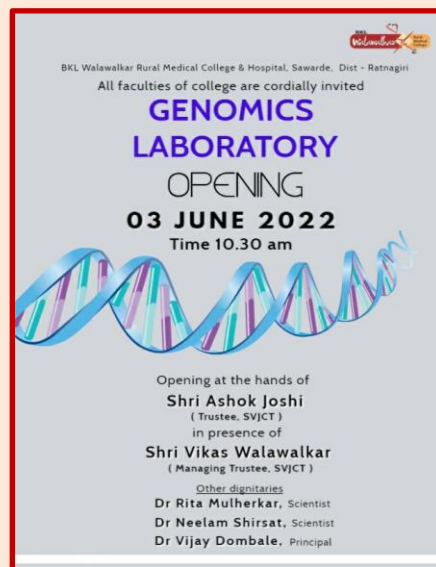
## Genomics Laboratory

On 3<sup>rd</sup> June 2022, a Genomics Laboratory was inaugurated by Shri Ashok Joshi Trustee SVJCT in the presence of Shri Vikas Walawalkar (Managing Trustee, SVJCT) at the BKL Walawalkar Rural Medical College. Dr. Rita Mulherkar, Scientist, Dr. Neelam Shirsat, Scientist, Dr. Vijay Dombale, Principal, Dr. Suvarna Patil, Medical Director, and several other dignitaries from the college and hospital were present at the inauguration.

The genomics laboratory was established with the initiation of genomic studies at the research center. Dr. Neelam Shirsat and Dr. Shripad Banavali, Tata Memorial Hospital are carrying out a project to develop a blood test for the early detection and monitoring of cancer patients. Cancer if detected at an early stage can be cured without the need for aggressive treatment. The initial emphasis of the study is on breast and ovarian cancer since these are the two most common gynecological cancers in the Kokan region. Breast cancer patients, especially those having hormone-responsive cancer, often have long-term survival but need monitoring at regular intervals. On the other hand, ovarian cancer is often detected at late stages due to the absence of symptoms at early stages. Ovarian cancer is very aggressive and refractory to treatment at late stages. Hence, a simple blood test is being developed for the early detection and regular monitoring of cancer patients at the Genomics Laboratory. The test is based on the release of small regulatory RNAs in circulation by cancer cells. In the first discovery phase, genome-wide profiling of the small RNAs will be performed on the blood samples from cancer patients and healthy normal controls. The test will then be developed based on the regulatory RNAs that are significantly different in blood samples of cancer patients compared to healthy controls.



Dr. Suvarna Patil, Medical Director, BKL Walawalkar Hospital is studying the effect of malnutrition on the long-term metabolic health of the adolescent population of Dervan and neighboring rural areas. India is the world capital of diabetes and also has a high incidence of cardiovascular disease. These metabolic diseases are not only prevalent in the urban population but also undernourished rural population. Biochemical analysis of the Dervan cohort shows a high prevalence of vitamin B12 deficiency and high levels of homocysteine in the blood. Homocysteine







is an intermediate in the metabolism of dietary methionine. High homocysteine levels could result from dietary deficiencies of vitamins like B12 and B6 but can also have a genetic basis. Therefore, Dr. Patil is studying polymorphisms in the genes involved in homocysteine metabolism. A polymorphism in a gene called *MTHFR* results in a 60% reduction in the activity of the MTHFR enzyme. This polymorphism, common in the Caucasian population, was found in about 15-20% of the Dervan population as well. Identification of the underlying cause of hyper-homocysteinemia is crucial for developing appropriate strategies to alleviate the problem. Hyperhomocysteinemia could also affect epigenetic modifications that could alter gene expression leading to metabolic syndromes.



Dr. Neelam Shirsat thanked Mr. Joshi and Mr. Walawalkar for promoting genomic studies and creating infrastructure for the same. She thanked Dr. Suvarna Patil, Dr. Rita Mulherkar, and Dr. Prasanna Nakathe for making available the infrastructure necessary for the genomic studies. The project on cancer is feasible today as the cancer treatment started several years ago by Dr. Shirpad Banavali at the BKL Walawalkar Hospital. She thanked Dr. Desai for the

tumor specimens and Dr. Vijay Dombale for the histopathological diagnosis of cancer patients. The genomics laboratory was designed and built in a short time by the efficient staff of the hospital and the initiation of the genomic study was feasible due to the support of the staff of several departments like the Department of Microbiology, Pathology, and Pharmacology at the college. The genomic laboratory is expected to boost research at the genomic level in various areas of medicine at the BKL Walawalkar hospital.



## Workshop and training conducted

1. Workshop on “**Collaborative network for adolescent nutrition and health in Sub-Saharan Africa and India**” by MRC Life course Epidemiology Unit, University of Southampton, UK. - 5<sup>th</sup> to 9<sup>th</sup> Feb 2018.



2. **Workshop on “Patent applications and innovations”** by Prof. Ganesh Hingmire (Director, GMGC - Great Mission Group Consultancy) conducted on 29.03.2019.



3. Guest lecture on ‘**Nature and Nurture in shaping our Health and Disease**’ on 21<sup>st</sup> December 2019 at 3.30 pm Dr. Ritwick Sawarkar, program Leader at MRC, University of Cambridge, United Kingdom



1. online Guest lecture - **“Research during MBBS -A vital step towards becoming a Clinician Scientist”** by Dr. Partha Dabke

**Research Awareness Lecture Series**  
Organized by  
**SVJCT's**  
**BKL Walwalkar Rural Medical College & Hospital, Sawarde, Ratangiri**  
  
A Webinar on  
**“Research during MBBS - A vital step towards becoming a Clinician Scientist”**  
by  
**Dr. Partha Dabke**  
MBBS, PhD  
Dept. of Pediatric Metabolic Medicine,  
Hannover Medical School, Germany  
President, Indian Association Hannover (IASH)  
  
Saturday , 26<sup>th</sup> June 2021, @ 3 pm IST.  
**Venue**  
**Lecture Hall No. 1**  
Session will be held through Zoom  
Registration is Free





2. Hands on Training of **Nucleic acid Extraction and Gel Electrophoresis** by Rita Mulherkar, Scientist, Researcher, Administrator Ex. Chairman & Professor, Mulherkar Lab, ACTREC, Navi Mumbai.



## Patent

### Information about various patents applied and granted

Patent No.	Name of patent	Patentee
366819	An apparatus for disinfection of household objects and material	Mr. Vikas Kamlakar Walawalkar Dr. Suvarna Netaji Patil Dr. Sunil Manohar Nadkarni
201921024182	A Menstruation Prediction Kit Examination awaited	B. K. L. Walawalkar Hospital and Research Center PI- Dr. Suvarna Patil



**भारत सरकार**  
GOVERNMENT OF INDIA

एकसूत्र कार्यालय / THE PATENT OFFICE  
बौद्धिक सम्पदा भवन / I.P.O. BUILDING  
एंटाप हिल/Antop Hill,  
एस.एम.रोड/ S.M.Road,  
मुंबई/ Mumbai- 400037  
दूरभाष /Tel. No.: (091)(022)24153651  
फैक्स / Fax: 022-24130387  
ई मेल/ Email: [mumbai-patent@nic.in](mailto:mumbai-patent@nic.in)  
वेबसाइट /Website: <http://ipindia.nic.in>

सं. \ No. 202021026379

दिनांक \ Dated the 17/05/2021

सेवा में, \ To :

Address of Service:- Rashmi Ganesh Hingmire, 142, Shaniwar Peth, Pune-411030, MS, India  
Email Id:- [sudhahingmire@gmail.com](mailto:sudhahingmire@gmail.com)

विषय :- पेटेंट आवेदन संख्या 202021026379 के संबंध में अधिनियम की धारा 43 के तहत पेटेंट अनुदान तथा पेटेंट रजिस्टर में प्रविष्टि की सूचना  
Sub :- Intimation of the grant and recordal of patent under section 43 of the Act in respect of patent application no. 202021026379

महोदय/महोदया,  
Sir/Madam,

आपको सूचित किया जाता है कि पेटेंट अधिनियम, 1970 की धारा 12 व 13 तथा उस आधार पर बने नियम के तहत उपर्युक्त पेटेंट आवेदन के परीक्षण [व 24/02/2021 को हुई सुनवाई] के उपरान्त एतद्वारा पेटेंट अनुदान किया जाता है। तथा पेटेंट अनुदान की प्रविष्टि 17/05/2021 को पेटेंट रजिस्टर में कर दी गयी है।

This is to Inform you that following the examination of above mentioned patent application under section 12 and 13 of The Patents Act, 1970 and Rules made thereunder [and hearing held on 24/02/2021 ] a patent is hereby granted and recorded in the Register of Patents on the 17/05/2021. The Patent Certificate is enclosed herewith.

पेटेंट संख्या \ Patent No	: 366819
आवेदक का नाम \ Name Of Applicant	: 1.Mr. Vikas Kamlakar Walawalkar 2.Dr. Suvama Netaji Patil 3.Dr. Sunil Manohar Nadkarni
पेटेंट दिनांक \ Date of Patent	: 22/06/2020
पूर्विकता तिथि \ Priority Date	: 22/06/2020
परीक्षण हेतु अनुरोध दाखिल करने की तिथि \ Filing date of Request for examination	: 26/06/2020
शीर्षक \ Title	: AN APPARATUS FOR DISINFECTION OF HOUSEHOLD OBJECTS & MATERIAL AND METHOD THEREOF
दावों की संख्या \ Number of claims	: 09 as on date 24-02-2021

उपर्युक्त पेटेंट के अनुदान का प्रकाशन अधिनियम की धारा 43 के तहत पेटेंट कार्यालय के आधिकारिक जर्नल में किया जाएगा।

The grant of above mentioned patent will be published in the Official Journal of the patent Office under section 43 of the Act.

पेटेंट अधिनियम 1970 यथा संशोधित पेटेंट (संशोधन) नियम, 2005/ पेटेंट नियम, 2003 यथा संशोधित पेटेंट (संशोधन) नियम, 2016 की धारा 142 की उप-धारा (4) के प्रावधानों के तहत उपरोक्त प्रविष्टि की तिथि से 3 माह के भीतर इस कार्यालय में नवीकरण शुल्क जमा किया जाना चाहिए।

The payment of renewal fee is required to be made at this office within three(3) months from the aforesaid date of recording according to the proviso in sub-section(4) of Section 142 of The Patents Act,1970, as amended by The Patents (Amendment) Act, 2005 / The Patents Rules, 2003 as amended by The Patents (Amendment) Rules, 2016.

Swati Pandey

(नियंत्रक पेटेंट)

Controller of Patents

टिप्पणी / Note :

1. संशोधित नवीकरण शुल्क हेतु कृपया महानियंत्रक पेटेंट, अभिकल्प एवं व्यापार चिह्न की आधिकारिक वेबसाइट [www.ipindia.gov.in](http://www.ipindia.gov.in) पर उपलब्ध पेटेंट (संशोधन) नियम 2016 की प्रथम अनुसूची (शुल्क) देखें।

For revised renewal fees kindly refer to the First Schedule (fees) of The Patents (Amendment) Rules 2016 available on the official website of Controller General of Patents, Designs and Trade Marks [www.ipindia.gov.in](http://www.ipindia.gov.in)

2. कार्यालय द्वारा पेटेंट प्रमाणपत्र की कोई भी कागजी प्रति अलग से जारी नहीं की जाएगी।

No hard copy of Patent Certificate shall be issued separately by the office.