

## CURRICULUM VITAE

Name of Incharge : LAKSHMANA KUMAR YERNENI  
Designation. : Scientist E  
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Discipline : Stem Cell Biology and Translational  
research

Educational Qualifications:	<b>Ph.D</b>	Pharmaceutical Toxicology	1988
	NET (CSIR) for JRF and Lecturership	Life Sciences	1984
	M.Sc.	<b>Cell Biology</b>	1983
	B.Sc.	Honours in Zoology	1979

### Employment Details:

- Research Officer, Institute of Pathology, New Delhi 1996-2001
- Scientist C (Senior Research Officer), Institute of Pathology, New Delhi 2001 - 2007
- Scientist D, (Asst. Director) Institute of Pathology, New Delhi, 2007 – 2012.
- Scientist E, National Institute of Pathology, New Delhi, 2012 to date

### Field of Specialization:

1. Pigment Cell Biology:
2. Mycoplasma surveillance in Cell Culture
3. Bioengineering of skin:

### Research Experience:

1. Technology development for growing cultured epidermal autograft from human keratinocyte stem cells suitable for autologous grafting in burns patients.
2. Bio-Engineering of skin using a synthetic polymer as scaffold.
3. Evaluation and utilization of a guinea pig model useful for screening new therapeutic regimen in vitiligo.

4. Melanoma model in C57 mice.

5. Mycoplasma contamination in Cell culture: The quality control issues.

**Research Techniques employed:**

Cell Biology and Toxicology –

- Cell and Tissue culture, Bioengineering of skin using scaffolding polymers
- Colony forming assay for stem cells
- Cell cloning
- Microbial culture (Mycoplasma)
- Development and use of Image analysis based quantification methods for mycoplasma contamination and colony forming efficiency of stem cells
- Karyotyping-G-banding, Histological, special staining, immuno cytological & histochemical and immunofluorescent methods,
- In Vitro quantification assays for cell proliferation by BrdU labeling, cells expressing specific marker
- In vivo assays for toxicology using mice and tumorigenesis in nude mice
- In vivo tumor (melanoma) models in C57Bl/7J mice
- In vivo guinea pig model for vitiligo
- In vivo mutagenesis assay using mouse bone marrow chromosomes
- Quantification of biomolecules by spectrophotometry & HPLC-MS
- Electron Microscopy - Scanning and Transmission
- Affinity Chromatography, PAGE & SDS-PAGE
- PCR & agarose gel electrophoresis, RT-PCR & Western Blot

**Guidance for thesis work:**

1. Supervisor for thesis work of a student for M.S. (Biomedical science) BITS, Pilani. The thesis was entitled “*A guinea pig model for the therapeutic evaluation of treatment modalities in vitiligo*”.
2. Guide for one student awarded Ph.D (Jamia Milia Islamia 2008) with thesis entitled “*Development and application of a protocol for detection, prevention and elimination of Mycoplasma contamination in cell cultures*”.

3. Guide for one student awarded Ph.D (BITS, Pilani, 2016) with thesis entitled “*A study on differential growth-arrest of 3T3 Fibroblasts used as Feeders for Stem cell Propagation*”.
4. One student with the proposed research title of “*Evaluation of epithelial-mesenchymal interactions using differentially growth-arrested Feeder cells to cultivate human epidermal keratinocytes*” is currently registered for Ph.D with Jamia Hamdard University, New Delhi

**Teaching Experience:**

1. Teaching faculty for M.S. (Biomedical Sciences), an integrated PG-Ph.D course for 5 academic years.
2. Teaching faculty: Undertook a course on “Cell and Tissue culture”- Course No. BIO G641 for the off campus pre-PhD program of BITS, Pilani, 2003 – to date.
3. Teaching Faculty: Refresher Course in Bio-Science for the faculty members of different Colleges and Universities conducted at the Academic Staff College, Jamia Milia Islamia, 2005-06.
4. Teaching Faculty Training Course for Pathologists and basic & Advanced level Training Course for technicians supported by WHO and Ministry of Health and Family Welfare 2004- to date.

**Guidance for thesis work:**

**Masters: Four students Completed:**

1. Supervisor for thesis work of a student for M.S. (Biomedical science) BITS, Pilani. (2003) The thesis was entitled “A guinea pig model for the therapeutic evaluation of treatment modalities in vitiligo”.
2. Supervisor for thesis work of a student for M.Sc (Biotechnology). Allahabad Agricultural Institute-Deemed University, Allahabad, (2006). The thesis was entitled “Ideal conditions for the attenuation of 3T3 fibroblast feeder layer cells suitable for stem cell culture”.
3. Supervisor for thesis work of a student for M.Sc (Microbiology), Jiwaji University, Gwalior (2006). The thesis was entitled “Optimal attenuation conditions for 3T3 fibroblast feeders suitable for use in stem cell culture
4. Supervisor for thesis work of a student for M.Sc (Biotechnology), School Of Biosciences, Suresh Gyan Vihar University, Jaipur (2011). . Evaluation of Ciprofloxacin as a routine cell culture antibiotic compared to standard penicillin & streptomycin combination

**Ph.D: students (Completed):**

1. Dr.Ashik Kumar awarded Ph.D with thesis entitled “Development and application of a protocol for detection, prevention and elimination of Mycoplasma contamination in cell cultures” from Jamia Milia Islamia, New Delhi

2. Dr.RishiMan Chugh awarded Ph.D with thesis entitled “A study on differential growth-arrest of 3T3 Fibroblasts used as Feeders for Stem cell Propagation” from BITS, Pilani.

**Ph.D: Students (currently registered):**

1. Mr.Madhusudan Chaturvedi is registered with Jamia Hamdard with the proposed research title of “Studies on Epithelial-Mesenchymal interactions using human epidermal keratinocytes and growth arrested fibroblast feeders”.
2. Mr.Amal Dev with proposed research title of “A study on non-xenogeneic approach for growing cultured epidermis” seeking Ph.D registration with Indraprasta University.

**Extra Mural Projects:**

1. Project Title In vitro cultivation of differentiated epidermis from human keratinocytes suitable for autologous grafting in burns patients  
 Subject NCD  
 Area Ad hoc project  
 Start Date 2000-10-01  
 End Date 2004-09-30  
 Status Completed
2. Project Title Cell culture contamination with Mycoplasma in basic and applied biomedical research  
 Project Number 2004-03570  
 Subject Cellular and molecular biology  
 Area Fellowship  
 Start Date 2005-09-01  
 End Date 2008-08-31  
 Status Completed
3. Project Title Investigation into the utility of a patented synthetic thermo-reversible hydrogel polymer as supportive matrix towards the development of 3-D composite skin for application in wound healing and other dermatological disorders  
 Project Number 2006-06400  
 Subject Stem cell research  
 Area Ad hoc project  
 Start Date 2007-06-20  
 End Date 2010-06-19  
 Status Completed
4. Project Title A novel arithmetic approach for fool-proof production of growth

arrest in 3T3 cells suitable for human epidermal culture

Project Number	2009-02800
Subject	Cellular and molecular biology
Area	Ad hoc project
Start Date	2010-06-21
End Date	2012-06-20
Status	Completed

5. Project Title                      Studies on epithelial- mesenchymal interactions using human epidermal keratinocyte stem cells and innovatively growth-arrested fibroblast feeders in 3-D collagen model

Project Number	2010-05750
Subject	Stem cell research
Area	Fellowship
Start Date	2010-11-10
End Date	2013-11-09
Status	Ongoing

6. Project Title                      Novel growth arrest protocol for human dermal fibroblasts useful as non-xenogeneic feeders for clinically applicable epidermal

Project Number	culture2012-15350
Subject	Stem cell research
Area	Ad hoc project
Start Date	Approved
End Date	Financial sanction awaited

**Awards:**

1. Received **Shri Shyam Lal Saksena Memorial Award** (2006) in the field of Bio-Medical Engineering by the NAMS [National Academy of Medical Sciences (India)]. The award was presented at the 46<sup>th</sup> Annual Convocation of NAMS, held at National Institute of Nutrition, Hyderabad, on 28<sup>th</sup> October 2006.
2. Awarded **WHO In-country Fellowship** in the field of study of ‘Research Methodology’ at the National Institute of Cholera and Enteric Diseases, Kolkata between 8<sup>th</sup> and 21<sup>st</sup> November 2004.

**Foreign Visits:**

1. Presented a paper entitled “Evaluation of a guinea-pig model for its usefulness as an animal model for pre-clinical drug trials in vitiligo” at the XVIII International Pigment Cell Conference (IPCC) held at Egmond Aan Zee, The **Netherlands**, 9 – 13<sup>th</sup> September 2002.
2. Presented a paper entitled “Mycoplasma contamination in cell culture laboratories: An Indian Perspective“ at the 16<sup>th</sup> International Organization for Mycoplasmaology (IOM) Congress 9<sup>th</sup> July to 14<sup>th</sup> July 2006, St. John’s college, **Cambridge**, UK. (Nominated for Harry Morton Award for best poster presentation).
3. Visited the clean room facility of Prof.Sheila McNeil, Tissue Engineering Lab, KROTO Institute, University of Sheffield, North Campus, Sheffield, UK, in 2006.

### **Publications:**

#### **PATENTS:**

1. LK Yerneni and Ashok Kumar (2009) A culture system for the growth of stem cells. Indian Patent File No.2086/DEL/2009. Grant No. 274456, date 26<sup>th</sup> July 2016 (Publication Issue 33/2010; date 13/8/2010, p 24092. International Classification No:C12N.
2. LK Yerneni and RM Chugh (2014). A method for processing of feeder cells suitable for adult stem cell proliferation. File Number 3115/DEL/2014, Filing date 30/10/2014. PCT WO2016067306, File Number PCT/IN 2015/000404, dated 29<sup>th</sup> October 2015.

#### **RESEARCH PAPERS:**

1. LK Yerneni, T.Guha. (1994) Cisplatin-induced shape transformations in mouse erythrocytes. JBAB, 2 (4), 51-53.
2. LK Yerneni, T Guha and B Iyengar. (1995) Cisplatin induced damage to testis: light and scanning electron microscopic study. JBAB, 3 (1), 13-18.
3. LK Yerneni and B Iyengar. (1996) G2 Phase dependant UV-induced dendricity and levels of dopa oxidase and other macromolecules in a murine melanoma cell line. Pig Cell Res 9 (4) part 2.
4. LK Yerneni and B Iyengar. (1996) The growth cycle phases and pigmentation status of hair follicles in Vitiligo. In: Growth Disorders of pigment cell Ed.B Iyengar and AV Singh, BI Churchill Livingstone, New Delhi. 90-99

5. LK Yerneni, B Iyengar and S Jayaraman. (1997) Treatment of melanoma with melatonin. *Melanoma Res.* 7 (Suppl.): S123.
6. Ashok kumar, SP Bajaj, A.Mukherjee and LK Yerneni (2001) In vitro cultivation of differentiated epidermis from human keratinocytes suitable for autologous grafting in burns patients. *Ind J Burns*, 9 (May): 65-68.
7. M.Yadav and LK Yerneni 2002. Evaluation of a guinea-pig model for its usefulness as an animal model for pre-clinical drug trials in vitiligo. *Pig Cell Res* 15 (Suppl.9) 45.
8. LK Yerneni and S.Jayaraman (2003) Pharmacological action of high doses of melatonin on b16 murine melanoma cells depends on cell number at the time of exposure. *Melanoma Res* **13**: 113 –117
9. Ashok Kumar, Arif Ali and L. K. Yerneni (2007) Effectiveness of mycoplasma elimination reagent on a hybridoma cell line with lab acquired extensive mycoplasma contamination. *Hybridoma* **26**: 104-6
10. LK Yerneni (2007) Bioengineering of cultured epidermis from adult epidermal stem cells using Mebio gel suitable as autologous graft material *J Stem Cells Regen Med* 3: 19-20.
11. Ashok Kumar, Arif Ali and LK Yerneni (2008) Tandem use of immunofluorescence and DNA staining assays to validate nested PCR detection of mycoplasma. *In Vitro Dev Biol Anim* **44**: 189-192.
12. Ashok Kumar and LK Yerneni (2009) Semi-automated relative quantification of cell culture contamination with mycoplasma by Photoshop-based image analysis on Immunofluorescence preparations. *Biologicals* **37**:55-60.
13. LK Yerneni (2009) Burn injury: a challenge for tissue engineers. *J Stem Cells Regen Med* 5 (2): 63.
14. RM Chugh, M Chaturvedi and LK Yerneni (2015) Occurrence and control of sporadic proliferation in growth arrested Swiss 3T3 feeder cells. *PLoS ONE* DOI:10.1371/journal.pone.0122056
15. RM Chugh, M Chaturvedi and LK Yerneni (2015) An evaluation of the choice of feeder cell growth arrest for the production of cultured epidermis. *Burns* 41: 1788-1795. <http://dx.doi.org/10.1016/j.burns.2015.08.011>.
16. RM Chugh, M Chaturvedi and LK Yerneni (2016) Exposure cell number during feeder cell growth-arrest by Mitomycin C is a critical pharmacological aspect in stem cell culture system. *J Pharmacol Toxicol Methods* 80: 68-74. **80**:68-74. doi:10.1016/j.vascn.2016.05.006

17. RM. Chugh, M. Chaturvedi, L.K. Yerneni (2016) Efficient and Safe Feeder Cell Processing Strategy Using Mitomycin C as a Substitute to Irradiation. *Cytotherapy* 18:S75. doi:10.1016/j.jcyt.2016.03.150
18. RM. Chugh, M. Chaturvedi, L.K. Yerneni (2017) An optimization protocol for feeder cell growth-arrest by Mitomycin C dose-to-volume derivation strategy. *Cytotechnology* doi:10.1007/s10616-017-0064-9

#### **Conference Abstracts:**

1. Ashok Kumar, Arif Ali, Yerneni LK (2006) Mycoplasma contamination in cell culture laboratories: An Indian Perspective. 16th International Organization for Mycoplasmaology (IOM) Congress, St. John's College, Cambridge, UK; 07/2006
2. Ashok Kumar, Arif Ali, Yerneni LK (2008) Photoshop based image analysis: A valuable tool to quantify the mycoplasma contamination in cell cultures as per se on immunofluorescence assay preparations. 17th International Organization for Mycoplasmaology (IOM) Congress, Tianjin Medical University, Tianjin, China; 07/2008
3. Ashok Kumar, Yerneni LK (2010) Detection of mycoplasma contamination in cell cultures by immunofluorescent Assay, Hoechst-DNA Staining and Nested PCR: A Comparative Study. 8th International Organization for Mycoplasmaology (IOM) Congress, Chianciano Terme, Siena, Italy; 07/2010
4. Ashok Kumar, Yerneni LK (2012) Elimination of Mycoplasma contamination in cell culture: Efficacy of different antibiotic. 19th International Organization for Mycoplasmaology (IOM) Congress, Toulouse, France; 07/2012
5. Ashok Kumar, Yerneni LK (2014) Conference Paper: Efficacy of commercially available anti-mycoplasma agent to eliminate mycoplasma contamination in cell culture. 6th Academic Congress of Asian Organization for Mycoplasmaology, Zhangjiajie, China; 08/2014
6. RishiMan Chugh, Madhusudan Chaturvedi and LK Yerneni (2016) Efficient and Safe Feeder Cell Processing Strategy Using Mitomycin C as a Substitute to Irradiation, International Society of Cellular Therapy, Singapore.