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EDUCATIONAL QUALIFICATIONS

- 2015: Certificate/Diploma in 'Teaching Skills and Research Ethics', University of Texas, Houston, Texas, USA (2015).
- 2007: PhD; School of Life Sciences; Jawaharlal Nehru University, New Delhi, India. (Supervisor: Prof. Atul Kumar Johri)
- 2003: MPhil; School of Life Sciences; Jawaharlal Nehru University, New Delhi, India.
- 2001: MSc; School of Life Sciences; Jawaharlal Nehru University, New Delhi, India.

RESEARCH/TEACHING EXPERIENCE

- 2016- : Assistant Professor and Ramalingaswami Fellow, Central University of Haryana, Mahendergarh, Haryana.
- Jan 2016-July 2016: Ramalingaswami Fellow, Center for Bioscience and Biomedical Engineering, Indian Institute of Technology, Indore, MP, India.
- 2011-2015: Postdoctoral Fellow, Centre for Metabolic and Degenerative Diseases, Institute of Molecular Medicine, University of Texas, Houston, Texas, USA. (Prof. Vihang Narakar's laboratory).
- 2010-2011: Postdoctoral Fellow, Department of medical oncology, Dana-Farber Cancer Institute, Harvard Medical School, Boston, Massachusetts, USA. (Prof. Ramesh Shivdasani's laboratory).
- 2007-2010: Postdoctoral Fellow, Department of Biomedical Engineering, Tufts University, Medford, Massachusetts, USA. (Prof. David Kaplan's laboratory).

AWARDS AND HONORS

- 2015: Ramalingaswami Re-entry Fellowship, Department of Biotechnology, India.
- 2015: Member, postdoctoral poster award committee, University of Texas, Houston, Texas, USA.
- 2014: Best Oral Presenter in 'Institute of Molecular Medicine (IMM)' Annual Retreat, Houston, Texas.
- 2013: Invited Judge for 'Science and Engineering Fair' University of Houston, Houston, Texas, USA.
- 2002: Research Fellowships, Council of Scientific and Industrial Research, India.
- 2001: National Eligibility Test, University Grants Commission, India.

SPONSORED PROJECTS

- 2015: Ramalingaswami Re-entry Fellowship

Funding Agency: Department of Biotechnology, Govt. of India.
Project title: "Role of Nuclear Receptor Coactivator PGC1β in diabetes Mediated Endothelial cell Dysfunction and Angiogenesis"
Project amount: 88.00 Lacs

Duration: 2016-2021

PUBLICATIONS

- Badin PM, Vila IK, Sopariwala DH, **Yadav V**, Lorca S, Louche K, Kim ER, Tong Q, Song MS, Moro C, Narkar VA. Exercise-like effects by Estrogen-related receptor-gamma in muscle do not prevent insulin resistance in db/db mice. ***Scientific Reports***. 6: 26442 (**2016**).

- Johri AK, Oelmüller R, Dua M , **Yadav V**, Kumar M , Tuteja N , Varma A , Bonfante P, Persson BL and Stroud RM. Fungal association and utilization of phosphate by plants: Success, limitations and future prospects. ***Fronteirs in Microbiology***. 6:1-13 (**2015**).

- **Yadav V,** Matsakas A, Lorca S, Narkar VA. Inhibition of Ischemic Muscle Neo-angiogenesis by Nuclear Receptor Co-activator PGC1β**.** ***Cell Reports.*** 8: 783–797 (**2014**).

- Trivedi MV, R Bhat, **V Yadav**, P Yadav, A Rawi AI, Christiny P, Nanda S, Giuliano M, Creighton C, Osborne CK, Narkar VA, Schiff R. GPR110 overexpression increases tumorigenic potential of HER2+ breast cancer cells. ***Cancer Research.*** 73; 24S. P6-04-05 (**2013**).

- Matsakas A, **Yadav V,** Lorca S, Narkar VA. Muscle ERRγ mitigates Duchenne muscular dystrophy via metabolic and angiogenic reprogramming. ***The FASEB J.*** (10):4004-16 (**2013**).

- **Yadav V**, Sun L, Paniliatis B, Kaplan DL. In vitro chondrogenesis with lysozyme susceptible bacterial cellulose as a scaffold. ***Journal of Tissue Engineering and Regenerative Medicine.*** doi: 10.1002/term.1644 (**2013**).

- Subramanian B, Ko W-C, **Yadav V**, Rochers T, Perrone R, Zhou J, Kaplan DL. Abnormal Matrix Interactions Regulate Cystogenesis in a Tissue Engineered Kidney Disease System. ***Biomaterials*****.** 33(33):8383-94 (**2012**).

- Matsakas A, **Yadav V,** Lorca S, Evans RM, Narkar VA. Revascularization of ischemic muscle by estrogen related receptor gamma**.** ***Circulation Research*****.** 110(8):1087-96 (**2012**).

- **Yadav V**, Paniliatis B, Hi Shi, Lee K and Kaplan DL. N-acetyl glucosamine deacetylase (NagA) requires for N-acetyl glucosamine assimilation in *Gluconacetobacter xylinus*. ***PLoS ONE*****.** 6(6): e18099 (**2011**).

- Kumar M, **Yadav V**, Singh A, Tuteja N and Johri AK. *Piriformospora indica* enhances plant growth by transferring phosphate. ***Plant Signaling and Behavior.*** 6(5): 723-725. doi:10.4161/psb.6.5.15106 (**2011**).

- **Yadav V**, Manoj Kumar, Deepak Kumar Deep, Tuteja N, Saxena AK and Johri AK. A phosphate transporter from the root endophytic fungus *Piriformospora indica* plays a role in the phosphate transport to the host plant. ***Journal of Biological Chemistry***. 285(34): 26532-44 (**2010**).

- **Yadav V**, Paniliatis B, Hi Shi, Lee K, Cebe P, Kaplan DL. A novel *in vivo*-degradable cellulose-chitin copolymer from metabolically engineered *Gluconacetobacter xylinus.* ***Applied and Environmental Microbiology*****.** 76(18):6257-65 (**2010**).

- Kumar M, **Yadav V** and Johri AK. Antioxidant enzyme activities in maize plants colonized with *Piriformospora indica*. ***Microbiology***, 155:780-90 (**2009**).

- Prasad R, Pham GH, Kumari R, Singh A, **Yadav V**, Sachdev M, Peskan T, Hehl S, Oelmuller R and Varma A. Sebacinaceae: Culturable Mycorrhiza-like Endosymbiotic Fungi and their interaction with Non-transformed and Transformed Roots. In: In Vitro Culture of Mycorrhizas, Soil Biology. (ed Declerck S) Springer-Verlag, Germany, Volume 4, Part V, 291-312 (**2005**).

- **Yadav V,** Malla R, Singh A, Pham GH and Varma A. Friendly fungi abate the stress. Vistas in Palaeobotany and Plant Morphology : Evolutionary and Environmental Perspectives (Professor D.D. Pant Memorial Volume) Edited by P.C. Srivastava, U P Offset, lviii, 484-192 (**2004)**

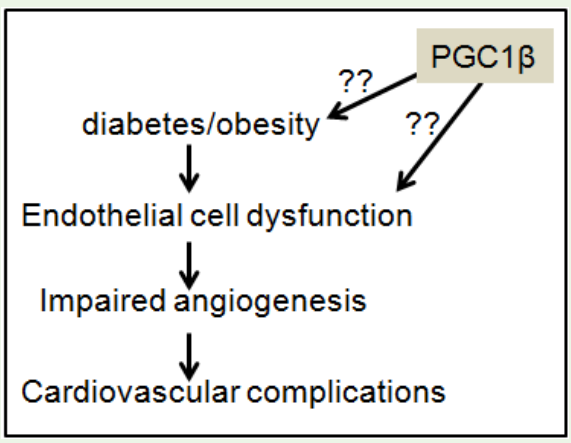
- Kumari R, Pham G H, Prasad R, Sachdev M, Srivastava A, **Yadav V**, Verma P K, Sharma S, Malla R, Singh A., Maurya A K , Prakash S, Pareek A., Rexer K-H, Kost G, Garg A P, Oelmueller R, Sharma M C and Varma A. Piriformospora indica: Fungus of the Millenium. In: Basic Research and Applications: Mycorrhizae (eds Podila G and Varma A) IK International- India,New York and Kluwer academic Press, Holland, pp 259-295(**2003**)

- Malla R, Singh A, Zeyaullah M.D, **Yadav V**, Varma A and Rai, M. *Piriformospora indica* and plant growth promoting rhizobacteria: an appraisal. In: Rao, G.P.; Manoharchari, C.; Bhat, D.J.; Rajak, R.C. and Lakhanpal, T.N. eds. *Frontiers of Fungal Diversity in India* (Prof. Kamal Festscrift). International Book Distributing Co. Lucknow, India, pp. 401-419 (**2002**).

RESEARCH PLAN

Nuclear receptors (NRs) are a superfamily of transcription factors that activate or repress gene transcription in response to specific stimuli. Upon binding with ligand, nuclear receptors undergo a conformational change that promotes an exchange of coregulatory proteins that regulate the transcription rate of specific target genes. During the past two and half decades, a large number of "orphan" nuclear receptors have been identified whose cognate ligands were not initially known. Among them, estrogen related receptors (ERR) are the orphan nuclear receptors that have been identified recently. The ERR family comprise of three nuclear receptors ie, ERRα, ERRβ and ERRγ. It is now clear that both ERRα and ERRβ are linked to the mitochondrial biogenesis, fatty acid oxidation, angiogenesis, and slow-twitch contractile myofibers in skeletal muscles. PGC1α and PGC1β acts as co-activator while RIP140 is the co-repressors of many nuclear receptors including members of ERR family. Upon binding to metabolic signals and/or co-activators, the ERRs modulate an overlapping network of genes that control critical metabolic responses including fatty acid oxidation and synthesis, lipid transport, adipogenesis, mitochondrial biogenesis, oxidative metabolism, angiogenesis. Thus, nuclear receptors are both sensors and effectors in metabolic pathways and might be critical to the development of metabolic diseases such as diabetes and obesity. Given these biological activities and their inherent ability to respond to low-molecular weight ligands, nuclear receptors represent ideal targets for the development of novel therapies for common metabolic disorders. Our laboratory is actively engaged to explore the therapeutic/protective role of ERRs and their co-activators (mainly PGC1β) in metabolic disease such as 'diabetes'. The **primary areas of research** in the laboratory are to explore the molecular events for their therapeutics targets for the following areas:

1. **Vascular complications (including cardiovascular) associated with metabolic diseases i.e, diabetes and obesity**



2. Neuromuscular diseases

3. Muscle wasting (Sarcopenia) and autophagy

Students and trainees will exploit transgenic, knockout mice models and virus based gene delivery technology for targeting nuclear receptors and their co-activators in vivo and in vitro (**in collaboration of Prof. Vihang Narkar, University of Texas, Houston, USA).** The trainees will gain experience in using genetic mouse models, cell culture, immuno-histochemistry, Real-time PCR, immunoblottings, ChIP, ChIP-seq and microarray analysis along with biochemistry, molecular biology and pharmacology to study mechanisms of receptor signaling. They will also use affinity purification in conjugation with mass spectrophotometry and Co-immunoprecipitations (co-IP) followed by ChIP to discover receptor interacting proteome and genome-binding sites respectively.