

## Varsha Likhite, Ph.D.

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**Scientist with industrial and research experience in conception and orchestration of several independent and collaborative projects. Expertise involves protein expression, purification, chemical conjugations, proteomic analysis and *high throughput in vitro* and cell based assays.**

### Education:

- Ph.D. Biochemistry, University of Illinois at Urbana-Champaign, 2003. Thesis: *Interaction of the DNA-bound estrogen receptor with co-regulatory proteins.*
- M.S. Biochemistry, University of Illinois at Urbana-Champaign, 2000.
- M.S. Microbiology, Maharaja Sayajirao University of Baroda, India 1990.
- B.S. Microbiology, Bombay University, India 1988.

### Work Experience:

#### **Scientist at Mountain View Pharmaceuticals**, Menlo Park (September 2006 to present)

Mountain View Pharmaceuticals is a small company exclusively dedicated to developing novel PEGylation technologies for improving performance of protein therapeutics. As the key scientist in the team, I accomplished the following:

- Initiated and implemented unique PEGylation of therapeutic proteins.
- Protein purifications using SEC, IEC and RPC.
- Carried out proteomic analysis to determine conjugation sites.
- Performed cell-based assays for monitoring activities of protein conjugates.

#### **Postdoctoral Fellow with Prof. John Katzenellenbogen**, University of Illinois at Urbana-Champaign (2003 to 2006)

- Established novel, High Throughput Time Resolved Fluorescent Resonance Energy Transfer assays (TRFRET), that are being utilized in Prof. John Katzenellenbogen's laboratory and at Molecular Library Screening Center, NIH for high throughput screening of modulators of estrogen receptor action.
- Initiated collaboration with Dr. Neil Kelleher's Laboratory to analyze modification status of protein using cutting edge mass spectrometry technologies.
- Collaborated with Dr. Benita Katzenellenbogen laboratory using established techniques to complement studies examining distinct expression profiles in breast cancer cells.

#### **Graduate Research Assistant with Prof. Ann Nardulli**, University of Illinois at Urbana-Champaign (1998-2003)

- Conceived a novel implementation of agarose electrophoresis for identification of components of large multi-protein-DNA complexes by mass spectrometric analysis. This work was instrumental in obtaining NIH funding for research projects that have identified key cellular processes and signaling pathways crucial in cancer progression.
- Constructed multiple protein expression vectors and established purification protocols that are currently used in several laboratories in different research organizations.

#### **Research Scientist at Hoechst Pharmaceuticals**, India (1991-1994)

As a key member of the drug discovery team, my responsibilities included establishing high throughput *in vitro* and *in vivo* screening assays. Accomplishments include designing and setting up assays for screening drugs including:

- DNA intercalating drugs
- HIV protease and reverse transcriptase inhibitors
- Transcription inhibitors of HSV

**Research Scientist at Johnson and Johnson, India (1990)**  
Participated in QC testing of Baby and Personal hygiene products.

## Technical Expertise

**Protein Biochemistry:** Protein expression in bacteria, insect and mammalian cells ; SEC, IEC, RPC using HPLC and FPLC; purification of single proteins and large complexes; protein manipulations including posttranslational, chemical labeling using biotin, fluorescent labels or polyethylene glycol; protein analysis using Experion, immuno-Western blotting, silver and fluorescent staining; proteomic analysis by limited proteolysis and mass spectrometry. Use of software tools including ExPaSy and Scansite.

**Cell and Molecular biology:** Primary cell cultures, monolayer and suspension cultures; Protein expression in mammalian, insect and bacterial systems; transient and stable transfections, reporter assays; proliferative and antiproliferative cell assays; screening cDNA libraries, vector constructions and DNA sequencing.

**High Throughput Assays:** Fluorescence polarization and TRFRET assays for monitoring ligand, protein and DNA interactions; Proliferative and antiproliferative cell assays; Transcription inhibition assays; Enzyme inhibition assays.

**Software:** GraphPad; ImageQuant; Photoshop, software tools including ExPaSy and Scansite.

## Grants:

- Postdoctoral Training Grant from NIEHS (NIH) Training Program in Toxicology, 2003-2006.

## Honors:

- Abstract Award, 2nd Great Lakes Nuclear Receptor Conference 2005.
- Women in Endocrinology Travel grant, 2003.
- Graduate College Conference Travel Grant UIUC, 2002.
- The Endocrine Society (Quest Diagnostics, Young Investigator) Grant 2002.

## Professional Memberships:

- Member of the Endocrine Society.

## Select Publications:

1. Marzouk SH, Likhite VS, Ziegler YS, McLeod IX, Yates JR, Nardulli AM (2007). *Rho GDP dissociation inhibitor  $\alpha$  interacts with estrogen receptor  $\alpha$  and influences estrogen responsiveness.* Molecular Endocrinology (Accepted).
2. Likhite VS, Stossi F, Katzenellenbogen BS, Katzenellenbogen JA (2006). *Kinase-specific phosphorylation of the estrogen receptor changes receptor interactions with ligand,*

- DNA, and coregulators, associated with alterations in estrogen and tamoxifen activity. Molecular Endocrinology 20: 3120-3132*
3. Stossi F, Likhite VS, Katzenellenbogen JA, Katzenellenbogen BS. (2006) *Estrogen-occupied estrogen receptor represses Cyclin G2 gene expression and recruits a repressor complex at the Cyclin G2 promoter. Journal of Biological Chemistry 281: 16272-16278*
  4. Likhite VS, Kass EI, Anderson SD, Yates JR, Nardulli AM (2004). *Interaction of estrogen receptor  $\alpha$  with 3-methyladenine DNA glycosylase modulates transcription and DNA repair. Journal of Biological Chemistry 279 :16875-16882*
  5. Loven MA, Likhite VS, Choi I, Nardulli AM (2001). *Estrogen response elements alter coactivator recruitment through allosteric modulation of estrogen receptor  $\beta$  conformation. Journal of Biological Chemistry 276: 45282-45288*
  6. Wood JR, Likhite VS, Loven MA, Nardulli AM (2001). *Allosteric modulation of estrogen receptor conformation by different estrogen response elements. Molecular Endocrinology 15: 1114-1126.*
  7. Wu SY, Thomas MC, Hou SY, Likhite VS, Chiang CM (1999). *Isolation of mouse TFIID and Functional characterization of TBP and TFIID in mediating estrogen receptor and chromatin transcription. Journal of Biological Chemistry 274: 23480-23490*

### Select Meeting Abstracts:

1. Likhite VS, Boyne MT, Thomas PM, Kelleher NL, Katzenellenbogen JA (2006). *Global phosphorylation status of estrogen receptor by 'Middle Down' FTMS analysis. 88<sup>th</sup> Annual Meeting of the Endocrine Society.*
2. Marzouk SH, Likhite VS, Ziegler YS, McLeod IX, Yates JR, Nardulli AM (2006). *A modulator of signal transduction, Rho GDP dissociation inhibitor, binds to estrogen receptor  $\alpha$  and increases estrogen-mediated transcription. 88<sup>th</sup> Annual Meeting of the Endocrine Society.*
3. Curtis CD, Likhite VS, Ziegler YS, McLeod IX, Yates JR, Nardulli AM (2006). *Interaction of estrogen receptor alpha with nonmetastatic protein 23 homolog H1 represses receptor-mediated transcription. 88<sup>th</sup> Annual Meeting of the Endocrine Society.*
4. Likhite VS, Boyne MT, Thomas PM, Kelleher NL, Katzenellenbogen JA (2006). *Estrogen receptor phosphorylation leads to changes in receptor interactions consistent with enhanced estrogen agonism and reduced tamoxifen activity. Nuclear Receptors: Steroid Sisters, Keystone Symposium.*
5. Stossi F, Likhite VS, Katzenellenbogen JA, Katzenellenbogen BS (2006) *Estrogen-occupied estrogen receptor represses cyclin G2 gene expression and recruits a corepressor complex at the cyclin G2 promoter. Nuclear Receptors: Steroid Sisters, Keystone Symposium.*
6. Likhite VS, Boyne MT, Thomas PM, Kelleher NL, Katzenellenbogen JA (2005). *Estrogen Receptor Phosphorylation and its Effects on Receptor Function. 87<sup>th</sup> Annual Meeting of the Endocrine Society.*
7. Stossi F, Likhite VS, Katzenellenbogen JA, Katzenellenbogen BS (2006) *Estrogen-occupied estrogen receptor represses cyclin G2 gene expression and recruits a corepressor complex at the cyclin G2 promoter. 87<sup>th</sup> Annual Meeting of the Endocrine Society.*
8. Likhite VS, Kass EI, Anderson SD, Yates JR, Nardulli AM (2003). *Interaction of estrogen receptor  $\alpha$  with 3-methyladenine DNA glycosylase modulates transcription and DNA repair. 85<sup>th</sup> Annual Meeting of the Endocrine Society.*
9. Likhite VS, Anderson SD, Yates JR, Nardulli AM (2002). *Modulation of estrogen receptor conformation by individual response elements influences recruitment of coregulatory proteins. 84<sup>th</sup> Annual Meeting of the Endocrine Society.*

10. Nardulli AM, Loven MA, Wood JR, Likhite VS (2002). *Allosteric modulation of estrogen receptor conformation by estrogen response elements*. Nuclear Receptor Super family Keystone Symposia.

**Citizenship and Visa status:**

Indian citizen, *permanent resident (Green card holder)* in the US, authorized to work without restrictions.