

Aruna B Pawashe

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Education

Ph.D. (Biochemistry)	Maharaja Sayajirao University, Baroda, India	1986
M.Sc. (Biochemistry)	Karnataka University, Dharwar, India	1979
B.Sc. (Chemistry, Botany, Zoology)	Karnataka University, Dharwar, India	1977

Professional Appointments

1993-to date	Lecturer and Associate Research Scientist, Department of Molecular Biophysics & Biochemistry and Department of Molecular Cellular and Developmental Biology, Yale University, New Haven, CT
1989 -1993	Postdoctoral Research Associate, Department of Internal Medicine, Yale University, New Haven, CT
1986-1988	Assistant Research Officer, National Institute of Nutrition, Hyderabad, India
1983- 1986	Research Assistant, National Institute of Nutrition, Hyderabad, India. (Part of Ph.D work was done after job hours)

Research and other Appointments

Summer, 2006-2008	Associate Research Scientist, Dr. Breaker's laboratory
Summer, 2001-2005	Research Fellow, Dr. Frank Ruddle's laboratory
Summer, 2001-present	Consultant, Recombinogenic Technology
Summer, 2000	Consultant, Ikonisys
Summer, 1996-1999	Research Fellow, Dr. Frank Ruddle's laboratory
Summer, 1993-1996	Associate Research Scientist, Dr. Konigsberg's laboratory

Awards, recognition & patents

- As an alumni of the biochemistry dept. M.S. University, Baroda, India, I was invited to give “*a career talk*” as a lecturer, scientist and a social worker, to the faculty and graduate students, July 2022. Lecture was well received. Many graduate students seemed interested & motivated in carrying out similar social work to improve awareness for STEM education in public schools of their *mother languages* and help disadvantaged children in their hometowns.
- Invited to showcase my work at a wall exhibit, “Women in Science and Engineering at Yale University: The Evolution” as part of 50 Women at Yale 150 by Center for Science and Social Science Information (CSSI), 2021

- Invited to contribute to a “Being Human in STEM” undergraduate student course project, *"How I Knew I Was a Scientist, An Exploration into the Stories of Underrepresented People in STEM"*, 2021. <https://campuspress.yale.edu/howiknewiwasascientist/spotlight-1/>
- Highlighted in YDN article on laboratory courses adhering to Covid-19 challenges, 2020 (<https://mbb.yale.edu/news/mbb-lecturer-aruna-pawashe-highlighted-ydn-article-lab-courses>)
- Nominated for “Alice Bohmfalk Teaching Award” in Basic Sciences, Yale University, 2012
- Invited for a presentation and demonstration of yoga benefits & postures to 3rd year medical students at a “Stress Management Workshop”, Summer 2008, 2009 & 2010
- Patent for "Mouse IgG anti-rabbit tissue factor monoclonal antibody AP-1" in collaboration with Drs. M.D. Ezekowitz and W. H. Konigsberg, Yale University. 1992
- Patent for 'Radiolabeled anti-tissue factor monoclonal antibody in the imaging and therapy of thrombotic disease' in collaboration with Dr. M. D. Ezekowitz, Yale University and S. C. Srivastava, Brookhaven National Laboratory. 1993

Memberships

- Member of MBB CoDC: 2016 -2020
- Trustee member at Vipassana Meditation Center, Shelburne, MA: 2015-present
- Member of Working Women’s Network (WWN) Award Review Committee, 2018
- Member of Advisory Board, Rajalaxmi Children Foundation, Belgaum, India, 2023

Teaching Experience*

Since the last 30 years I have been teaching two undergraduate laboratory courses at Yale University. (1) MBB 360Lb, an intensive full credit course was required for MBB majors until spring 2017, when it was replaced by an advanced MBB 460L, and (2) MBB 251La, a half-credit course taken mostly by students with science or non-science backgrounds, in order to fulfill pre-medical as well as MBB major requirements; the course is offered jointly by MBB and MCDB. Both courses are taught twice a week throughout the term and consist of a series of condensed research projects designed to introduce a variety of topics of current interest in biochemistry, biophysics, and molecular biology. The syllabus for MBB 251L includes, mutagenesis of Staphylococcal nuclease to understand protein folding, gene cloning, DNA sequencing and protein purification & enzyme kinetics. The syllabus for MBB 360L also included cloning and analysis of a homeotic gene, antibody staining, alternate splicing and phage display. Requirements for both courses included 2-4 laboratory reports written in the style of an article in a scientific journal, short quizzes, problem sets &/or oral group presentations. Every year in consultation with the students and TA’s feedback, the course syllabus is updated & the laboratory manual kept current with modern technologies.

In 2018, we introduced an advanced laboratory for biochemistry, molecular biology and biophysics, MBB 460L a half semester course, in lieu of MBB 360L full semester course. It is designed to try out a

short project from a research laboratory with a defined problem, achievable goal and an unknown outcome. Students will be doing real research with supervision for 6 weeks. During first semester students performed an open ended experiment, “Selection of RNA aptamers that bind to specific targets” on an individual basis, using challenging state of the art techniques featuring, SELEX (Systematic Evolution of Ligands by Exponential Enrichment), SPR (Surface Plasmon Resonance) and Bioinformatics (for analysis of sequencing data obtained from Sanger’s sequencing for selected RNA aptamers from individual clones). This course has been a challenge. Although hectic and with limited time, I have enjoyed the planning and execution of each individual laboratory activity. Students gathered an impressive amount of significant data and their results were presented in a poster format at MBB Departmental retreat, 2018. During spring 2019, we undertook a Next-Generation sequencing (NGS) data analysis project where student analyzed a large data set generated from the previous semester samples. Student learned how to process these data sets using several publicly available bioinformatics tools. The results obtained were novel and met publication criteria. These findings were presented in a final poster format at MBB Departmental retreat, 2019. For spring 2020, students were challenged to tackle a unique research problem of their own design using cutting-edge molecular evolution technique to create a new DNA structure that can specifically recognize and bind a target material of their choice. Useful and transferrable skills included biomolecular engineering and nanopore DNA sequencing. Due to Covid-19, students were unable to complete their projects as originally planned.

Due to the pandemic, MBB 251L course was switched to remote setting after spring break of 2020. During the academic year 2020-21, teaching resumed remotely using online available material with an optional wet lab experience in boot camp format for those who expressed interest, following all the precautionary measures of Covid-19 safety. The laboratory curriculum was re-designed and hybrid instruction was provided synchronously through lectures, video demonstrations of lab projects, Labster’s virtual labs, zoom breakrooms, YouTube videos & other virtual labs for data collection. Asynchronous activities were also included through YouTube movies, Labster’s labs, research papers & MBB 251La Laboratory manual readings.

I actively participated in courses & seminars offered by Poorvu center for Teaching and Learning, tested several of Labster’s Labs and recommended Poorvu center for its University license. I have thus included several relevant Labster’s labs in my course, MBB 251L, for I found the material relevant for virtual, conceptual and prelab learning. The world’s evolving situation on Covid-19 testing and drug/vaccine development during pandemic also became part of our virtual zoom teaching, which made our course syllabus interesting to students as it was most relevant to their day to day life. During fall 2020, Dr. Cao from David Baker’s laboratory, University of Washington was invited zoom guest speaker to introduce his work on “ACE-2 decoy as a nasal spray to prevent Covid-19. During spring 2020 semester, students were assigned in zoom breakrooms to give oral &/ or power point presentations on Covid-19 vaccine development and also on most recent modern biochemical or biophysical techniques/methods of their choice, as part of group problem set questions. Students were also introduced to Lateral Flow Assay (LFA), a rapid test for identification of Covid-19 antibodies, by live demonstration from instructor’s blood samples before and after Moderna vaccination over zoom.

During Covid, laboratory curriculum was also modified to include, a wellness component, an *optional* 10-minute pre-class and 15-minute zoom coffee break aimed at facilitating the student’s ability to cope with stress & zoom fatigue and therefore have a more productive disposition during class. Activities included optional meditation, yoga, and breathing exercises. The response was well received by pupils, who participated, during the fall 2020, spring 2021 and fall 2021 semesters. Thus when Yale returned to regular in-person teaching, 10 minutes of optional meditation session before the start of our laboratory

course was continued both during fall 2022 and spring 2023 semesters, towards belonging, at the beginning of each class, also introduced ~5 minutes of personal story (*an act of gratitude*) time for inclusive atmosphere in the class.

***Courses Taught**

Laboratory for Molecular Biophysics and Biochemistry (MBB 251La/MCDB301La), 1993-2019, 2022

Laboratory for Molecular Biophysics and Biochemistry (MBB 251Lb/MCDB301Lb), 2017-2019, 2023

Advanced Laboratory for Molecular Biophysics and Biochemistry (MBB 360Lb), 1993-2016 taught for 25 years (discontinued from spring 2017)

Advanced Molecular Biology Laboratory (MBB 460Lb), a project-based laboratory course. 2017-present.

Laboratory for Molecular Biophysics and Biochemistry curriculum for hybrid instruction during COVID-19 crisis, (MBB 251La/MCDB301La), 2020 and 2021

Laboratory for Molecular Biophysics and Biochemistry curriculum for hybrid instruction during COVID-19 crisis, (MBB 251Lb/MCDB301Lb), 2020 and 2021

Supervisory Experience

Advised a MCDB major student towards his senior essay.

Guided three MBB major undergraduate students with their research projects towards college credit requirements.

Taught biochemistry and molecular biology techniques to ~15 high school students during summers.

As a laboratory instructor, trained and supervised over 160 graduate students of the department, who have helped me teach undergraduate laboratory courses.

Supervised, trained and often acted as an unofficial academic, career and wellbeing counselor to over 1850 MBB, MCDB and other science and non-science major undergraduate students.

Wrote over 260 recommendation letters for student's medical school, summer research, graduate school, teaching and other jobs.

Administrative and Grant Writing Experience

Acted as a coordinator and communicator between teaching assistants, senior faculty and Chairman of the department for smooth and efficient running of laboratory courses.

Wrote proposal and obtained Moore funds for undergraduate laboratory while at Osborne Memorial Laboratory (OML) on regular basis for improvement of teaching. Funds were used for development of new experiment and/or modification of existing experiment. Provost's Fund was obtained for upgrade of equipment and renovation/painting of laboratory space during summers as both laboratory and my office in OML had often water leak from ceiling, walls & exhaust pipes until laboratory was relocated to a newly renovated space at Sterling Chemistry Laboratory (SCL) in 2016.

Since 2016, collaborated and brainstormed for appropriate allocation of provost's funds for improvement of teaching on yearly basis with MCDB & EEB faculty. Funds are used for purchase of laboratory equipment towards development of a new laboratory experiment and/or to replace outdated/damaged equipment. Some of the equipment is also shared between three departments at SCL.

Worked with university insurance for replacing major equipment in OML laboratory, damaged due to flooding of summer 2015. Took pictures of damaged equipment, obtained quotations and purchased new equivalent equipment for the laboratory through insurance coverage.

Attended several meetings hosted by Office of Facilities architect, Karl Nordstorm, on SCL Teaching Laboratory Renovation Design Development Phase as MBB representative and took meeting minutes for the teaching faculty. Together with MBB DUS, Dr. Michael Koelle, negotiated space, equipment and furniture for MBB laboratory and instructor's office. During renovation, ensured technical aspects were correct by inspecting drawings and also taking tours of SCL laboratory, communicated with the project manager and effectively transitioned the move of MBB laboratory from OML to SCL with Move Coordinator: 2013-2015

Accommodated and helped Dr. Scott Strobel's rainforest course, taught for 5 years in OML, by redesigning laboratory space to accommodate BL2 hood and other special equipment, especially two large environmental shakers and centrifuges in the limited laboratory space, 2007-2012.

In 2009, physical plant had charged exuberantly to install an ice machine delivered from West Campus for which I provided documentation of hours of labor and material spent on installation and got the refund from Bob Villani from physical plant for MBB.

Research Experience

Summers of 2006-2007: As an Associate Research Scientist, worked in Dr. Ronald Breaker's laboratory. Explored various methods leading to the identification of novel riboswitches (small, structured RNA molecules) that regulated gene expression in bacteria. Collaborated with graduate students, postdoctoral fellows and research faculty.

Summers of 2001-2005: As a Research Fellow, worked in Dr. Frank Ruddle's laboratory for Asilas Genomic Systems, Inc., a start-up company, in collaboration with Dr. C.S. Shashikant of Penn State University. Helped generate toolsets towards developing transgenic mouse models that are useful in studying human pathologies. My primary task was cloning and modifying larger genomic constructs by yeast recombinogenic method (using well developed yeast/bacterial shuttle vector, pClasper, in the

laboratory). Also successfully used bacterial recombinogenic method for replacing short stretches of enhancer elements from larger genomic constructs for testing their role in transgenic mice. I was instrumental in establishing RNAi methodology in Ruddlle's laboratory. Studied knockdown of GTF2I (transcriptional factor involved in Williams Syndrome) expression in stably transfected COS-7 cells, using Ambion's siRNA Expression Cassettes (SECs).

Summers of 1996-1999: As a Research Fellow, worked in Dr. Frank Ruddle's laboratory on the study of transcriptional regulation of a mouse homeobox gene, *Hoxc8*. Identified a new *cis*-acting element of the early enhancer by DNA-mobility shift assays. Set up cell transfection assays for characterizing transactivation of the early enhancer by potential transcription factors such as Cdx proteins.

1989-1993: As a Postdoctoral Research Associate at Yale University, examined the role of tissue factor in the formation of thrombus during restenosis following angioplasty in a rabbit model system in collaboration with Drs Konigsberg, Garen and Ezekowitz. Isolated and characterized gene encoding rabbit tissue factor, purified tissue factor and produced monoclonal antibodies. In particular, characterized an inhibitory antibody against rabbit tissue factor, which was shown to be a powerful antithrombotic reagent *in vivo*. Its potency gave us two very useful patents. This antibody was later sold to Genentech Inc. Engineered a single chain antibody against tissue factor, which was shown to inhibit tissue factor activity in a blood-clotting assay. Also contributed to the production of monoclonal antibody against glycoprotein IIb/IIIa, which was tested for its ability to inhibit platelet aggregation both *in vitro* and *in vivo*. During my postdoctoral training, trained several BA, BS, and MD students in research techniques and guided their research projects to successful completion.

1983-1988: As an Assistant Research Officer at National Institute of Nutrition, Hyderabad, India, studied nutritional status of women during pregnancy. Provided Biochemical and Immunological expertise for field studies by developing methods and reagents. Purified proteins, ferritin and plasma specific B1 glycoprotein (SP1) from placenta and raised antibodies against ferritin. Developed an ELISA technique for the detection of ferritin in finger prick blood samples, a method that became very useful and popular in rural field situations to identify iron deficiency anemia among pregnant women, infants, preschool children and adolescent girls.

1979-1983: As a graduate student, in association with Prof. S.K. Srivastava, studied the regulation of arginase in germinating Chickpeas (*Cicer arietinum* L.). Demonstrated that arginase activity declined rapidly in the embryonic axis. Disappearance of embryonic enzyme activity was consistent with the appearance of a small molecular weight compound, which was subsequently purified and characterized to be a methylated sugar derivative. This factor rendered arginase inactive by a novel mechanism. When arginase bound to this factor, the enzyme became unstable & thermo-labile.

Consulting Experience

Summer 2000: Consultant to Ikonisys, a start up company in Science Park, New Haven, CT. Job required setting up of a new laboratory and standardizing proof of principal experiment, "a rare cell detection method", for the company.

2001-2019: Consultant to Recombinogenic Technology, Cheshire, CT. Regular advice and expertise on various matters including administration, scientific research and grant proposals is provided to company's CEO and CSO.

Outreach Activities

-2020-2021: During Covid, provided 10 tablets and audio visual equipment to help teachers for making videos for virtual teaching of underprivileged children at an elementary public school, Govt. Marathi Model School (GMMS) in Southern part of Indian village, Hindalga, near Belgaum, through personal funds. This effort supported school teachers to make videos and send lessons to children's parents on smart phones, when schools were closed. Whenever schools opened briefly during Covid, students made use of these tablets in groups for learning math and science through virtual games.

Dec. 2019-Current: Promoting STEM education in mother languages & providing modern infrastructure to public schools in Indian rural village, Hindalga, Belgaum:

Built~ 1500 sq ft of science and computer laboratories at the Govt. Marathi Model School (GMMS) for through private and family funds to support underprivileged children's education <https://www.youtube.com/watch?v=n2CqKprIFsc>. During Covid provided 10 tablets and audio visual equipment through personal funds for virtual teaching of underprivileged children at GMMS. This effort supported school teachers to make videos and send lessons to children's parents on smart phones, when schools were closed. Whenever schools re-opened briefly during Covid, teachers made use of these tablets for teaching math and science through virtual games. These tablets are now part of computer laboratory, which is also furnished with 11 computers donated by Woodbridge rotary club through the effort of Bethany Community School (BCS) children, CT USA. Currently furnishing science lab at the GMMS.

On February 24, 2023, at an “*International Mother Language Day*” event organized by Bangla students community at *Yale Dwight Hall*, spoke on the importance of elementary school education in *mother languages* in India and other developing countries for diversity, children's discipline and better conceptual understanding of the subject.

-On July 1, 2022, As an alumni of the biochemistry dept. M.S. University, Baroda, India, I was invited to give “*a career talk*” as a lecturer, scientist and a social worker, to the faculty and graduate students. Lecture was well received. Many graduate students seemed interested & motivated in carrying out similar social work to improve awareness for STEM education in public schools of their *mother languages* and help disadvantaged children in their hometowns.

Sept. 2022-Current, modernizing infrastructure of the Hindalga High School (grades 8-10th), by providing computers & hiring of a paid computer teacher, to train teachers and students towards use of computers for learning. Provided computers, monthly internet connection and salary of a computer teacher through private funds. Also establishing an after-school tutoring program for disadvantaged children. Updates can be seen at: <https://www.gofundme.com/f/local-school-development-in-hindalga-india>.

2021-Current: Promoting cultural & knowledge exchange between schools in India and USA:

Towards this goal started a buddy program, “*Be The Change*” between 3 schools (*Jyoti Central school*, *JCS & Govt. Marathi Model School, GMMS*) from Belgaum, India and one from USA (*Bethany*

Community School, BCS, Bethany, CT). So far we had 4 successful zoom meetings. BCS school enjoyed videos made by school children and teachers in India, especially the video learning on math fraction through relay game: <https://www.facebook.com/watch/?v=3183647891958364>. During our 4th buddy meeting on April 6th 2023, I invited, Mr. Jack Crane, Advisor, CONNSTEP & Director of New Haven science fair, Christin Arnini, mentor coordinator and Director for Scientific Review Committee, New Haven and Medria Blue-Ellis, Principal of Science Engineering University Magnet School (SEUMS) as observers for possible collaboration with New Haven public schools. GMMS teachers and students shared cultural activities and use of computers during their 45 minutes of meeting time with BCS students. Program had a positive response from all observers. Mr. Crane predicted start of a new joint science program with SEUMS & GMMS with some value to India life. (<https://www.facebook.com/mhps.hindalga.1/>). I will be discussing on the expansion, coordination and feasibility of such a collaboration between New Haven schools and Govt. public schools in India over coming weeks.

Feb. -March 2023, at SEUMS, I was paired to mentor with a 9th grade science teacher in person to guide and motivate her students with their science projects for the school science fair. One of the student's project (*How music affects plant growth*), won the first prize in the school science fair competition for 9th-12th grades on Mar 30th, & now the student will participate in New Haven science fair competition. SEUMS teacher was thrilled and said, normally only students, who have the privilege of working at Yale labs and/or guided by their academic parents are the winners in school's competition and this year it was an exception. SEUMS principal, Ms. Medria Blue-Ellis, is very interested in having a possible collaboration on her school's STEM projects with schools in India.

Nov 2022-Jan 2023, volunteered at New Haven Science Fair Family Nights, demonstrating pre-planned science experiments to parents and their kids, grades 3-6 in three different New Haven public schools, to get them excited about learning science.

On May 15, 2023, chosen to lead a judging team (*team captain*) for the New Haven Science Fair.

June-July 2023: Towards an international collaboration effort, an arrangement for hosting a 11th grade high school student from USA (Portland, OR), to volunteer during her summer break to teach English and conduct science experiments at GMMS has been made.

Work with a non-profit in India:

2021-current: Working with a non-profit in India: Provided encouragement by giving lectures & demonstrating science experiments in local languages to motivate disadvantaged students from Rajalaxmi Children foundation's (RCF) after school program <https://www.rajalakshmifoundation.in> & also local village public schools in Belgaum, India. **Since Dec. 2022**, mentoring a group of 9th grade students from RCF's Pratibha Poshak (*means talent nurturing*) online program. <https://www.rajalakshmifoundation.in/pratibha-poshak>. I also regularly invite our Yale students as guests, to motivate these underprivileged children from rural public schools, where learning facilities don't exist or very minimal, through personal stories and Q/A interactions. Presently I am working towards an online platform for coordination of guests for over a dozen of Pratibha Poshak's mentoring groups. RCF is currently working towards having me on their **advisory board** for mutual benefit of our ideas and resources and is very interested in emulating our "*be the Change*" buddy program with other language rural public schools in India.

2017- 2020: As MBB CoDC member organized a 4-week stress relieving yoga and meditation lunch session on Fridays at BASS building. Also hosted screening of movie and lectures on meditation on

Science Hill Campus, Branford college and at New Haven Public Library. These events were organized with the help of graduate and undergraduate student volunteers and co-sponsored by Being Well at Yale, Chaplain's Office, South Asian Society Council, Yale Hindu Student council, Yale Buddhist Sangha, Asian Networking at Yale and New Haven Public Library.

2020: Founded a "Women in STEM Support Group (WSSG)" of Yale undergraduate students to address concerns of both harassment and academic guidance on response to a survey after watching "*Picture a Scientist*" film with my peer faculty members, Drs. Maria Moreno and Marta Wells of MCDB and EEB departments respectively.

2019: Invited Judge for the Yale Undergraduate Research Association Symposium (YURA).

2015- 2019 & 2023: Opened MBB 251La during fall and MBB 360Lb/ 460Lb during spring semester for Faculty Bulldog days. Six faculty members signed up for our 2023 spring semester laboratory course and 4 members participated in lab class activities. Two of them enjoyed doing hands on experiments with students and learning the advanced technology on genome sequencing.

Spring 2018: As a member of Working Women's Network (WWN) Award Review Committee, attended weekly meetings and reviewed ~ 10-15 recommendations in four categories for 5 weeks. Provided comments and my vote for the best non-faculty candidate in each category.

2017- 2019: As a member of WWN, volunteered at yearly Multicultural Block Party events at Yale.

2012- 2018: Counseled STEM students during Yale Engineering and Science (YES) weekend, considered for admission to Yale (now Bulldog Days). Provided guidance and encouraged to join Yale.

20014- 2018: Participated in Yale Pathways to Science program. Counseled cohort of students (grades 6-12) from New Haven area schools interested in pursuing career in STEM education, inspiring them with my postdoctoral research and by providing information on various programs at Yale to develop skills towards preparation for STEM career.

Summer 2005-07, 2018, 2021: Volunteered at New Haven Science Fair for middle school and high school students as part of Yale STEM Outreach Program. As a judge and team captain, evaluated ~ 10-12 posters, networked, provided feedback and selected awardees.

Summer 2012-2015: -Worked with the Breakthrough Science Department, Hopkins School, New Haven, to enrich the current science curriculum for a science specific Teacher-Intern training. Particularly involved in providing ideas in designing and incorporating newer experiments into existing curriculum and provided guidance to Teacher-Intern trainees.

Spring 2015-2019 & 2022: As a Vipassana trustee member at Vipassana Meditation Center, Shelburne, MA (<https://www.dhara.dhamma.org/os/trust/trust-list/>) for Connecticut region and as an old student practicing meditation, to bring awareness of a breath focused nonsectarian meditation technique for stress relief, organized public lectures on Vipassana Meditation by Dr. Paul R. Fleischman, at Yale Harkness Auditorium, New Haven. Events are sponsored by Yale Chaplain's Office, Being Well at Yale, South Asian Studies Council, Integrative medicine program at Yale School of Medicine, Yale Program for Medicine, Spirituality and Religion, Yale Undergraduate, Graduate and Professional Student bodies and The New Haven Insight Meditation Sangha. Due to Covid his 6th annual public lecture <https://www.canva.com/design/DAFPgVLg63U/XBrGrZildIfYLzwfEYy75A/view?> was over zoom.

2018: Wrote a proposal for elective residential course on meditation at Yale School of Medicine (YSM) which was approved by Drs. Jessica Illuzzi and Michael Schwartz, Medical Education Curriculum Development Committee members. Lack of funds and space halted the proposal.

Summer 2015-2019, 2023: Hosted, organized and volunteered 1-day free “*Teen Meditation Course*” & children’s course (8-12 year old) for ~ 30-50 students (boys and girls) at Yale Harkness Ballroom. Professional children course teachers from Boston and New York area were invited to conduct these courses.

2006-2015: Taught and led morning & evening free Yoga at Yale medical school and Science hill campuses, thrice a week during spring, summer and fall sessions. Undergraduate, graduate and medical students, postdoctoral fellows, Yale employees and faculty, took advantage of stress relieving classes.

Spring 2011: Friday evening yoga session was conducted at the request of Dean of medical school towards a program to increase events and courses around student wellness.

Summer 2008, 2009 & 2010, was invited for a presentation/demonstration of yoga to 3rd year Yale medical students at a “Stress Management Workshop”.

2006-Current: Founder and board member of Alumni Association (USA chapter) of Biochemistry Department, MS University Baroda, India. Organized and coordinated several alumni reunion meetings at New Haven, New Jersey and Washington, DC.

Summer 2012: -Taught yoga to 1st-4th grade students in an afterschool activity program at Amistad Academy Elementary School, Edgewood Avenue, New Haven.

Summer 1999: Organized a visit from students of Amity Jr. High School, who spent a day in the laboratory with hands on experiments, lecture, video presentations and visits to individual laboratories in the MB&B department.

Entrepreneurial Activities

Summer 2007: Formed a team, “Healthy Group Activities” (HGA). Recruited 7 team members with similar interests. HGA’s goal was to promote healthy activities such as yoga, tai chi, and group dances in every department at Yale on regular basis, convenient to students, faculty, and employees and spread the knowledge one knows best, by training and creating the goodwill among volunteers.

Fall 2007: Healthy Group Activities, HGA participated in the Y50K, business competition under non-for-profit social entrepreneurship category at Yale University. HGA was selected in the first round of the competition. Although HGA didn’t make it to the final round, its effort was well appreciated and applauded by Yalies.

Summer 2008: HGA received a contract from a local business, Marrakech Inc. a non-profit organization, New Haven, CT. HGA hired two yoga and tai chi instructors and did an excellent job in serving its disadvantaged youths.

Technical Skills

Biochemical: isolation, purification and characterization of proteins including subcellular fractionation, chromatographic and electrophoretic techniques, enzyme kinetics, spectrophotometry, spectrofluorimetry and densitometry. Also isolated, purified and characterized biologically active low molecular weight compounds, as a graduate student.

Immunological: Preparation of polyclonal and monoclonal antibodies to protein antigens, antibody purification, Immunohistochemistry, immunofluorescence, ELISA, RIA, FISH, Western blotting, immuno-electrophoresis, immunoaffinity and other routine methods.

Tissue culture: Growing, expanding and freezing of hybridoma cell cultures, transient and stable transfections with mammalian cell lines.

Molecular biological: DNA sequencing, Construction and screening of genomic and cDNA libraries; antibody engineering, panning of peptide-phagemid libraries, PCR, isolation of DNA and RNA; Southern and Northern hybridization analysis; gel retardation assays; recombination-based cloning and modification techniques, Quantitative Real Time PCR Assays and RNA interference (RNAi), Surface Plasmon Resonance (SPR), Systematic Evolution of Ligands by Exponential Enrichment (SELEX), Nanopore Sequencing.

Journal Articles

Wang, C. H. W., Anand, S., Powell, D. R., **Pawashe A. B.**, Amimiya C.T. and Shashikant, C.S. (2004). Comparative cis-regulatory analysis identify new elements of the mouse Hoxc8 early enhancer. *J. Exp. Zool. Mol. Dev. Evol.* 302, 436-445.

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Ragni M., Cirillo P., Pascucci I., Scognamilglio A., Andrea D., Eramo N., Ezekowitz M D., Pawashe A., Chiariello M., and Golino P. (1996). A monoclonal antibody against tissue factor shortens tissue-plasminogen activator lysis time and prevents reocclusion in a rabbit model of carotid artery thromobosis. *Circulation*, **93**, 1913-1918

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- Raman L., Pawashe A.B. and Ramalaxmi B. A. (1992). Iron nutritional status of preschool children *Ind. J. Pediatr.* **59**, 209-212.
- Raman L., Pawashe A. B. and Yasodhara P. (1992). Iron nutritional status of pregnant women. *J Postgrad Med.* **38**, 65-67.
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