

# Rajan Bawa

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## Professional Summary

- Wide network of connections worldwide, including access to investors, technical partners, clinical & preclinical CROs, CDMOs, and R&D facilities.
- Developed products and processes enabling robust and scalable cGMP manufacturing. This assured ease of IND submissions and facilitated FDA approval.
- Proven track record of patents and R&D supporting regulatory submissions, resulting in innovative marketed products. Examples: Novel ocular gelling systems and implantable devices for cancer.
- Established and maintained relationships with external sponsors, and cross-functionally with internal stakeholders: Chemistry, Engineering, Product & Process Development, Clinical Research, Quality Assurance, and Manufacturing
- Coordinated sponsor requirements with internal stakeholders, including study directors, surgeons, pathologists, formulations, and technical staff, ensuring timely study completion
- Technical expertise, strategic thinker, reliable with demonstrable motivational leadership
- Led the BD team in preparing project proposals for clients to address RFP, RFI from clients
- Strong knowledge of regulatory requirements governing preclinical research, including GLP and relevant guidelines (e.g., FDA, USDA)
- Business Development: As owner and CSO of Colorado Histo-Prep and CARE, new client acquisition & retention, revenue growth over 600%
- Managed special challenging projects that involved strategic planning and execution (technical and financial), out-of-the-box thinking, and unique approaches to product development, formulation, process, and analytical methods
- Guided several Biotech Companies by providing technical and strategic input as a Scientific Board Member
- Established and maintained relationships with external research partners, academic institutions, and CROs to leverage expertise, access specialized capabilities, and outsource pre-clinical studies when necessary
- Oversaw the execution of preclinical studies, ensuring compliance with regulatory guidelines, GLP, and internal quality standards
- Implemented continuous process improvements and streamlined operations
- Directed multiple projects spanning the entire project life cycle from concept, budget, organization, resource allocation, and stakeholder discussions
- Strong verbal and written communications, excellent problem-solving, conflict resolution, & leadership skills

## **EXPERIENCE & ACCOMPLISHMENTS:**

### **PRECLINICAL SCIENCES, LLC Fort Collins, Colorado (2021 – present)**

#### **Chief Executive Officer**

*Preclinical Sciences, LLC <http://www.preclinicalsciencesllc.com> is a consulting company that offers services including study placement, study design, project oversight, regulatory strategy development and execution, product and process development to pharmaceutical, biotech, and device companies, both domestically as well as worldwide*

### **CARE Research Fort Collins, Colorado (2010 - 2021)**

*Care Research, LLC <http://www.careresearchllc.com> is a pre-clinical laboratory that provides surgical and toxicological services to pharmaceutical, biotech, device companies, and governmental agencies*

#### **Chief Scientific Officer (2010 - 2021)**

- *Increased the customer base of clients of the company 500% over 14 years by attracting new clients and convincing them to choose CARE services by explaining our unique USP*
- *Coordinated and managed relationships between sponsors, pathologists, scientists and diverse functional groups, accelerating project completion by 35% over competitors*
- Conducted all Official Responses Ensuring Compliance to FDA audit findings
- Encouraged staff to attend workshops and training seminars to sharpen their skills
- Provided technical leadership for identifying and implementing innovative methods and processes.
- Consulted in the areas of pharmaceutical and biomedical device product development, including regulatory strategies in the area of parenterals, ophthalmics, orthopedics, GI, pulmonary, cardiac, biomolecules, growth factors, dental and anti-neoplastic agents.

#### **Chief Executive Officer (2010-2020) (In 2020, sold the company)**

- *Increased the gross revenues of the company 600% over 10 years.*
- Hired and maintained an independent QAU unit
- Developed and managed budgets
- Set and executed a successful business strategy for a state-of-the-art toxicological and surgical testing laboratory.
- Hired and created a diversified professional team, including women and minorities

### **Colorado Histo-Prep., Fort Collins, Colorado (1999- 2019)**

*Colorado Hist-Prep (CHP) [www.histoprep.com](http://www.histoprep.com) was a pre-clinical laboratory that provided histopathology and clinical pathology services to CROs, pharmaceutical, biotech, device companies, and governmental agencies*

#### **President.**

- *Increased the gross revenues of the company 400% over 5 years*
- *Coordinated and managed relationships between sponsors, pathologists, scientists, and diverse functional groups, resulting in accelerated project completion 35% quicker than the competition*
- Conducted all Official Responses, Ensuring Compliance to FDA audit findings
- Maintained an independent QAU unit
- Test Site Management

- Developed and managed budgets by monitoring spending and expenses
- Set business strategy for a state-of-the-art histopathology and clinical pathology laboratory.
- Hired and created a diversified professional team, including women and minorities
- Encouraged staff to attend workshops and training seminars
- Provided technical leadership for identifying and implementing innovative methods and processes.

### **Atrix Laboratories, Fort Collins, Colorado**

(1997 - 1999)

*Atrix Labs (now part of Indivior) <http://indivior.com/> a global pharmaceutical company focused on addiction treatments and Tolmar <http://tolmar.com/> a fully integrated pharmaceutical company specializing in developing controlled drug delivery treatments for oral, oncology as well as dermatological conditions.*

#### **Director, Pharmaceutical Development**

- Managed the research & development activities of a diverse multifunctional development department comprising of analytical chemistry, process research, packaging, and formulation development.
- Developed innovative processes for powder filling of drugs as well as lyophilization of injectable polypeptides in plastic syringes. This enabled the development of commercial-scale production of leuprolide acetate, currently marketed as **ELIGARD**®
- Conceived and implemented development and regulatory strategies resulting in the rapid approval and marketing of unique injectable, in-situ gelling formulations for the treatment of prostate cancer. Resulted in a multi-million-dollar contract with European partner Indivior, PLC for extended-release buprenorphine (for treatment of opioid induced addiction), marketed as **SUBLOCADE**®
- Developed formulations containing an antibacterial agent for the treatment of periodontal disease. **ATRIGEL**®
- Provided technical analyses, evaluations, and advice to the licensing department for research collaboration with other companies.

### **Alcon Laboratories, Fort Worth, Texas**

(1993 - 1997)

*Alcon Labs (Division of Nestle) [www.alcon.com](http://www.alcon.com) is a worldwide leader in ophthalmic products*

#### **Associate Director, Drug Delivery/Formulations Research**

- Developed a unique, environmentally responsive gel platform for anti-glaucoma drugs and Anti-infectives. Intensive efforts resulted in the rapid progression of strategic formulations through ANDA & NDA targets and subsequent successful marketing under Alcon's branded generic Falcon line. Alcon was acquired by Novartis [www.novartis.com](http://www.novartis.com) and subsequently brought into its Sandoz Division [www.sandoz.com](http://www.sandoz.com)
- Coordinated submission of regulatory documents meeting aggressive timelines

- Developed unique formulations improving the solubilization of poorly soluble drugs (such as prostaglandins, such as latanoprost) using innovative ingredients to enable expeditious global regulatory approval (especially Japan & Europe) and subsequent worldwide marketing
- Developed novel topical formulations (NSAID, antiglaucoma) directly targeting leading competitors and bypassing their patents (diclofenac sodium, Timolol maleate)
- Developed physicochemical methods for materials/formulations characterization to support (505) 2b claims for extended-release timolol maleate. Provided technical analyses, evaluations, and advice to the licensing department for the acquisition of new compounds and technologies.
- Negotiated and coordinated research with other companies
- Refocused department activities to align with R&D strategy. Resulted in acceleration of key programs by 6-8 months.
- Developed and managed an operating plan for the department.
- Developed a strategic plan for the department geared toward a superior/differentiated product stream, including inserts/implants.

#### **Bausch & Lomb, Rochester New York**

(1984 - 1993)

*Bausch & Lomb ([www.bausch.com](http://www.bausch.com)) is an eye health company, dedicated to perfecting vision and enhancing life for consumers around the world. Core businesses include soft and rigid gas permeable contact lenses and lens care products, and ophthalmic surgical and pharmaceutical products*

#### **Manager, Technology Integration**

(1991 - 1993)

- Developed a strategy to address process manufacturing problems. Successfully executed and implemented to prevent product recall.
- Established programs to aggressively pursue external technologies to supplement internal product development efforts.
- Attacked a critical manufacturing problem. Identified cause, developed and implemented solution leading to cycle reduction from seven months to 3 days. Success led to development and marketing of second lens following same developmental model.
- Proposed a new strategy for implementing short and long term action plans for R&D projects. This proposal resulted in timely commercialization of new soft contact lenses.
- Led multifunctional teams responsible for process improvement and cost reduction projects.

#### **Manager, New Concepts Development**

(1988 - 1990)

- Developed unique characterization methods for hydrogels and silicone polymers for contact lens applications.
- Conceptualized a revolutionary family of sterile and versatile ocular drug delivery systems (both bioerodible as well as nonerodible) for antinfectives and lubricants.
- Led a diverse project team addressing formulation, characterization, analytical, clinical, and regulatory aspects through successful development of the minidisc containing an anti-infective biomolecule
- Directed activities of a multidisciplinary group of chemists and engineers to conceive new product and process concepts and develop them through feasibility.

- Invented and developed innovative lens production processes based on ***supercritical fluid technology*** that allowed the development and successful marketing of cutting-edge new products for the global marketplace.

**Senior Scientist**

(1984 - 1987)

- Invented & implemented unique product ideas for contact lenses & drug delivery systems
- Developed innovative processes and methods of characterization and analyses for new materials.

**Hoffman La Roche, Inc., Nutley, New Jersey ([www.roche.com](http://www.roche.com))** (1981 - 1983)

**Research Engineer**

- Prepared parenteral clinical supplies of thymosin and interferon for use in oncology  
Investigated skin permeation kinetics of prostaglandins and interferon for transdermal systems using mice and cadaver skin.
- Conceived and developed targeted systems for anti-infectives and anticancer agents using pH-sensitive polymers.
- Evaluated the release characteristics of benzodiazepines from a unique safe sustained delivery system, lengthening the gastric emptying time. This enabled “evergreening” the status of diazepam and converting its use to once daily vs. three times daily.

**Teaching Experience:**

**IIT (Indian Institute of Technology) Tier 1 School**

**Dept of Biomedical Engineering**

(July 2025 – present)

- Co-Teaching Course in Biomaterials  
IIT BM 606-2025 A: “Biomaterials & Tissue Interactions”

**BITS-Pilani (Goa Campus) Tier 1 School**

**Visiting Professor, Dept of Chemical Engineering**

(Jan 2022-Dec 2022)

- Developed & taught a 4-unit course  
BITS F418 “Introduction to Biomedical Engineering”

As COVID-19 was widespread for the couple of beginning months of 2022, taught the course online initially and subsequently, from March to December, taught the course in person for 2 semesters

- Developed and co-taught a 3-unit core “Separations Processes II” course (80 students)
- Counseled undergraduate students on course choice and curriculum
- Counseled undergraduate and graduate students on career choice and internships
- Guided two undergraduate students for a Process Design course
- Advised an undergraduate chemical engineering student for his research thesis:  
“Microfluidic Ocular Model for an Ophthalmological Drug Delivery System”

Counseled the student on choosing the research topic, discussed the relevance, and met frequently with him to guide him in his investigations. Conducted evaluations and awarded a grade

- Advised an undergraduate mechanical engineering student on his project research:

“Physico-chemical investigations of Drug/Polymer Films of a Novel Polymeric System.”

Counseled the student on choosing the research topic, discussed the relevance, and met frequently with him to guide him in his investigations. Conducted evaluations and awarded a grade

- Helped guide several PhD students on their thesis research, including biosurfactants and gas hydrates

**Education:** University of Rochester, Rochester, New York

(Dissertation in polymeric controlled release elucidated the parameters affecting the release of hydrophilic drugs from hydrophobic matrices. Studied the fundamental mechanisms operative in a development product - the minidisc, a sterile ocular insert, containing an antiinfective.

**Ph.D.** - Chemical Engineering

Massachusetts Institute of Technology, Cambridge, Massachusetts (Advisor: Robert Langer; Thesis involved microstructural and kinetic characterization of ethylene vinyl acetate-protein matrices: prototype implants)

**M.S.** - Chemical Engineering

**M.S.** - Biochemistry & Metabolism

Birla Institute of Technology & Science, India

**B.E. ChE** - Honors, Chemical Engineering

## **Patents and Publications:**

### **Patents:**

“Method for Lyophilizing an Active Agent”, USP#7,467,482 (2015), C.L. Yarborough, D.G. Madril, and R. Bawa

“Method for Lyophilizing an Active Agent”, USP#7,467,482 (2008), C.L. Yarborough, D.G. Madril, and R. Bawa

“Method for Lyophilizing an Active Agent”, USP#6,907,679, (2005), C.L. Yarborough, D.G. Madril, and R. Bawa

“Process and Delivery Container for Lyophilizing Active Agent” USP#6,722,054 (2004), C.L. Yarborough, D.G. Madril, and R. Bawa

“Stoppering Method to Maintain Sterility”, USP#6,626,870, (2003) C.L. Yarborough, M.R. Duncan, R.L. Norton, R. Bawa, D.G. Madril, and C.J. Barrett

“System for Use in Lyophilization Comprising Delivery Containers and a Cover Plate”, USP#6,610,252, (2003) D.G. Madril, C.L. Yarborough, and R. Bawa

“Treatment of Contact Lenses with Supercritical Fluid” USP#6,610,221 (2003), R.Bawa, F.Tasber and D.Hahn

"Cover Plate For Use In Lyophilization" USP #6,566,144 (2003), D.G. Madril, C.L. Yarborough, R. Bawa and C.J. Barrett

"Gelling Ophthalmic Compositions Containing Xanthan Gum"  
USP #6,261,547 (2001), R. Bawa, R. Hall, B. Kabra, J. Teague, G. Cagle, K. Markwardt and M. Shah

"Treatment Of Contact lenses With Supercritical Fluid"  
USP #6,180,031 (2001), R. Bawa, F. Tasber and D. Hahn

"Gelling Ophthalmic Compositions Containing Xanthan Gum"  
USP #6,174,524 B1 (2001), R. Bawa, R. Hall, B. Kabra and J. Teague.

"Storage-Stable Prostaglandin Compositions"  
USP #6,011,062 (2000), W. Schneider, R. Bawa and A. Weiner

"Treatment Of Contact lenses With Supercritical Fluid"  
USP #6,071,439 (2000), R. Bawa, F. Tasber and D. Hahn

“Topical Ophthalmic Acidic Drug Formulations”

USP #5,558,876 (1996), S. Desai and R. Bawa

"Process For Making Silicone Containing Hydrogel Lenses"

USP #5,260,000 (1993), M. Nandu, R. Bawa and Y.C. Lai

"Spincasting Process For Producing A Series Of Contact Lenses Having Desired Shapes"

USP #5,260,001 (1993), M. Nandu and R. Bawa

"Ophthalmic Article" (Minidisc Patent)

USP #5,137,728 (1992), R. Bawa

"Sustained Release Formulation Containing an Ion - Exchange Resin"

USP #4,931,279 (1990), R. Bawa and D.V. Ruscio

"Manufacture of Polymeric Contact Lenses"

USP #4,732,715, (1988), R. Bawa and W.G. Deichert

"Method of Forming Iris Variegation Patterns on Contact Lenses"

USP #4,719,657, (1988), R. Bawa

"Contact Lenses Having Fluorescent Colorants and Apparatus for Making Such Lenses"

USP #4,702,574, (1987), R. Bawa

"Sustained-Release Formulation containing an Amino Acid Polymer with a Lower Alkyl (C1-C4) Polar Solvent"

USP #4,713,244, (1987), R. Bawa and W.G. Deichert

"Sustained-Release Formulation Containing an Amino Acid Polymer" USP

#4,668,506 (1987), R. Bawa

## **Publications:**

"Use of a bioactive and robust 3D printed soft implant for repairing critical sized cartilage lesions in a goat knee model" AAOS 2019 Annual Meeting, March 12-16 in Las Vegas, Nevada, B. Holmes, N.Castro, S. Lee, C. Rossi, C.Cannova, R. Bawa and M. Oetgen

"The 3DBiopsy System: Preclinical Investigation of a Needle, Actuator, and Specimen Collection Device Allowing Sampling of Individualized Prostate Lengths Between 20 and 60 mm," Urology 107 (2017), pp 257-261, N. N. Stone, V. Mouraviev, D. Schechter, M. S. Lucia, E.E. Smith, P. Arangua, J. Hoenemeyer, J. Rosa, R. Bawa, E.D. Crawford Fitzsimons Innovation Campus, Bioscience Park Center, Aurora, CO

"Ocular Inserts", Ophthalmic Drug Delivery, Marcel Dekker 1993, pp.223-260, R. Bawa



"The Mechanism of Controlled Release of Hydrophilic Drugs from Hydrophobic Polymers", (1992), R. S. Bawa (Ph.D. Thesis), University of Rochester, Rochester, NY

"Physico-chemical Considerations in the Development of an Ocular Polymeric Drug Delivery System," *Biomaterials*, 11 (9), (1990), pp 724-728, R. Bawa and M. Nandu

"An Explanation for the Sustained Release of Macromolecules from Biocompatible Polymers," *J. Controlled Release*, 1, (1985), pp 259-267, R. Bawa, R.A. Siegel, B. Marasca, M. Karel and R. Langer

"Polymers for Sustained Macromolecular Release: Kinetics, Applications and External Control," *AICHE Symposium Series, Controlled Release Systems*, 206, (1981), pp. 10-20, R. Langer, D.S.T. Hsieh, A. Peil, R. Bawa and W. Rhine

"Controlled Release of Macromolecules from Ethylene-Vinyl Acetate Copolymer Matrices: Microstructure and Kinetic Analyses", (1981), R. S. Bawa (Masters' Thesis), Massachusetts Institute of Technology, Cambridge, MA

"Polymers for the Sustained Release of Macromolecules: Applications and Control of Release Kinetics," *Controlled Release of Bioactive Materials*, Academic Press, 1980, pp 83-98, R.S. Langer, W.D. Rhine, D.S.T. Hsieh and R.S. Bawa

#### **Abstracts:**

"Polymers for the Sustained Release of Macromolecules: Microstructural Studies and Their Application to Kinetic Models" 87th National AIChE Conference, 1979

"Polymers for Sustained Drug Release: Applications and Methods of Control," 89th National AIChE Conference, 1980

"Recent Advances in Controlled Release Systems for Macromolecules," *Proceedings of the 8th International Symposium on the Controlled Release of Bioactive Materials*, 1981

"New Extended-Release Ocular Drug Delivery System - Design, Characterization and Performance Testing of Minidisc Inserts," *Proceedings of the 15th International Symposium on the Controlled Release of Bioactive Materials*, 1988, R.Bawa, M. Dias, M. Nandu and J.R. Robinson

"The Role of Microscopy in the Study of Diffusion in Polymeric Drug Delivery Systems," *Diffusion '89*, (1989), R. Bawa and R.S. Langer

"Physico-Chemical Considerations in the Development of a Nonbioerodible Ocular Device (Minidisc) for the Controlled Release of Hydrophilic Drugs", *Polymer Preprints*:1, 30:1 (1989), R. Bawa, S. Coffey and M. Nandu

"Recent Studies on the Continuing Characterization of Minidisc inserts for Ocular Therapy", Proceedings of the 16th International Symposium of the Controlled Release of Bioactive Materials, 1989, R. Bawa, M. Nandu, W. Downie and J.R. Robinson

"Characterization and Stability Testing of an Ophthalmic Polymeric Drug Delivery System," Polymer Preprints, 31:1, (1990), R. Bawa and S. Coffey

"Manipulating Release Kinetics of Gentamicin sulfate by altering crosslink length and polarity of novel hydrophobic matrices", Proceedings of the 18th International Symposium on the Controlled Release of Bioactive Materials, 1991, R.Bawa and H.J. Palmer

"Manipulating Release Kinetics of Gentamicin Sulphate from Novel Hydrophobic Polymer Matrices", 100th National AIChE Conference, 1991, R. Bawa and H.J. Palmer

"Sustained Release of Leuprolide Acetate: Development of a Novel In-Situ forming Biodegradable polymeric implant as the Delivery Vehicle", B. Chandrashekar, D. Anna, D. Madril, K. Tow, C. Balliu and R.S. Bawa, 1998 AAPS Annual Meeting Abstracts, Nov 1998, Vol#1, pg 414

"Development and Characterization of Novel Bioerodible Drug Delivery Systems Containing Doxycycline", L.A. Moore, J. Barrall, C. Yarborough, R. Grousnick and R. Bawa, Society for Biomaterials Annual Meeting, 1999.

"An In-Situ Forming Guided Tissue Regeneration Barrier with Doxycycline", J.S. Garrett, K.M Holland, B.A. Coonts, L.A. Moore, K.E. Cady, C. Yarborough, R. Bawa and R.L. Dunn, Society for Biomaterials Annual Meeting, 1999.

"Sustained Release of Leuprolide Acetate from an In-Situ Forming Biodegradable Polymeric Implant as the Delivery Vehicle", Proceedings of the 26<sup>th</sup> International Symposium on Controlled Release of Bioactive Materials, 1999, B.L. Chandrashekar, D. Madril, K. Tow and R. Bawa

"Effect of Decalcification and Processing Parameters in Trout Histology", Proceedings of the 9<sup>th</sup> Annual Whirling Disease Symposium, 2003, R. Bawa, P. Walker and C. Smith

"Identification of Myxolobus cerebralis Triactinomyxon Proteins using a Novel Histochemical Procedure", Proceedings of the 10<sup>th</sup> Annual Whirling Disease Symposium, 2004, R. Bawa, A. Miller and E.J. Wagner

## **Other Training:**

Dale Carnegie

Numerous ISO 9000 courses

Numerous management, team building, and leadership courses.

SQA Basic GLP Training (4/2013)

Rocky Mountain Regional Chapter SQA (11/2012)

(Taking the EEEEE Out of Compliant Electronic Records)

## **On Job Training**

Operation of the Fidex Micro CT for Imaging (7/2017)

Basic GLP Course (SQA) (5/2013)

GLP Training Course (5/2011)

FDA Parallel Comparisons (12/15/00)

Techniques of Hematology & Urine Analysis (11/11/04)

Comminuted Meat Samples screening (02/22/05)

Certified Histotech (2001)

## **Scientific Advisory Board Positions**

Scispot [www.scispot.com](http://www.scispot.com) is a leading Lifescience Tech Stack provider transforming companies into digital biology entities (2024)

Hemp Bioscience, LLC [www.titr8.com](http://www.titr8.com), a company focused on providing solutions for pain management using naturally derived ingredients as an alternative to addictive opioids (2020)

Nanochon [www.nanochon.com](http://www.nanochon.com), a company focused on 3D printing of materials used for bone replacement (2017- present)

3D Biopsy [www.3dbiopsy.com](http://www.3dbiopsy.com), a company focused on innovations for directed biopsies for the diagnosis of prostate cancer (2016 - present)

Ram Chameli Chadha Vishvas Girls College [www.rccvvc.com](http://www.rccvvc.com)

An educational institution focused on providing college-level education exclusively for women. If the students are unable to afford the tuition or living expenses, both these expenses are waived (2013-present)

Canadian biotechnology company (2006-2008) No longer in business

## **Board Member**

IANC (Indian Association of Northern Colorado)- Board Member (2017- 2019)

Rocky Mountain Regional Chapter of SQA (Society of Quality Assurance)- Board Member (2018-2019)

Rocky Mountain Regional Chapter of SQA (Society of Quality Assurance)- President (2017-2018)  
Rocky Mountain Regional Chapter of SQA (Society of Quality Assurance)- Vice President (2016-2017)  
Rocky Mountain Regional Chapter of SQA (Society of Quality Assurance)- Board Member (2013-2015)  
IANC (Indian Association of Northern Colorado) – General Secretary (2010)

## **Memberships**

Society of Quality Assurance  
Society of Toxicology  
American Institute of Chemical Engineers  
Wound Healing Society  
Rocky Mountain Chapter Society of Quality Assurance (Member of Board of Colorado Chapter)  
Sigma Xi  
American Society of Mechanical Engineers  
American Society of Clinical Pathology (H.T.)

## **Personal**

Member of Rotary International (Fort Collins) (2010 - 2016)  
Participated in Polio Revaccination Program (Bihar, India) (2013 Rotary Exchange)