Bezwada Biomedical

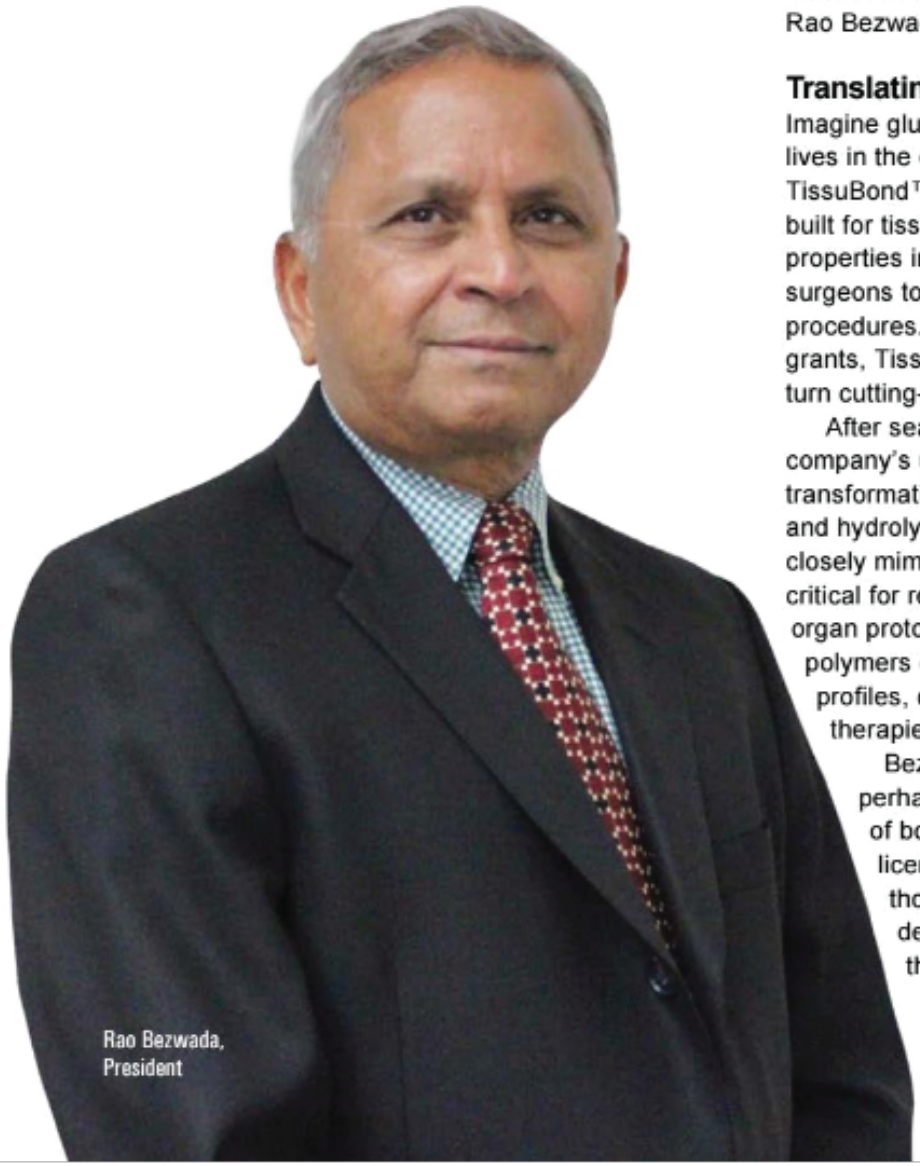
Absorbable Polymers, Enduring Impact

When Dr. Rao S. Bezwada, President of Bezwada Biomedical, began his career in polymer chemistry, he wasn't following curiosity; he was setting up advances that would reshape surgery across the globe.

After completing his Ph.D. in Chemistry at Stevens Institute of Technology, he joined Ethicon, a Johnson & Johnson company. There, his work led to the development of MONOCRYL®. This synthetic absorbable monofilament suture offered strength, flexibility, and reliable resorption, and soon became the global benchmark in wound closure. With more than $2 billion in sales and a Johnson Medal to its credit, MONOCRYL® was a commercial success that showed how Dr. Bezwada's approach to polymer design could redefine medicine.

His ambitions, however, stretched well beyond sutures. In 2003, he founded Bezwada Biomedical in New Jersey, an ISO 13485-certified firm focused on custom, fully absorbable polymers. Today, the company works alongside medical device manufacturers, drug delivery innovators, and researchers in regenerative medicine, tissue engineering, biotech, and medtech, guided by its mission to engineer solutions that elevate patient outcomes.

"We design polymers from the molecular level up, transforming breakthrough chemistry into reliable, absorbable solutions that meet medicine's evolving needs and improve patient outcomes worldwide," says Rao Bezwada, President, Bezwada Biomedical.



Rao Bezwada, President

Translating Chemistry into Cure

Imagine glue designed not for paper, but for saving lives in the operating room. That idea became TissuBond™, an absorbable polyurethane adhesive built for tissue sealing and hemostasis. Its tunable properties in gelation, elasticity, and degradation give surgeons tools to perform delicate, minimally invasive procedures. Supported by NSF SBIR Phase I & II grants, TissuBond™ embodies the company's ability to turn cutting-edge science into practical solutions.

After sealing comes rebuilding tissue. The company's use of bioinks for 3D bioprinting is equally transformative. Designed with customizable mechanical and hydrolytic properties, they enable scaffolds that closely mimic natural tissue environments, which are critical for regenerative medicine and even artificial organ prototypes. Alongside these, controlled-release polymers offer precise degradation and drug-delivery profiles, opening new possibilities for combination therapies.

Bezwada Biomedical's executional strength is perhaps best illustrated by the MONTAGE® family of bone hemostats and cranial bone cements, licensed to Abyrx Inc. Used in hundreds of thousands of surgeries, these products demonstrate the versatility and reliability of the company's polyurethane chemistry. Each

variant is tailored to specific surgical needs, delivering performance without compromising safety.

Serving a global client base that includes medtech giants and regenerative medicine startups, Bezwada Biomedical applies its polymers to a range of products, such as adhesives, hemostats, implant coatings, bone void fillers, and more. In every case, the approach remains consistent, tailoring the polymer to the clinical challenge, ensuring safety, efficacy, and scalability.

polymers, ECO-BIOMAXX™ offers unparalleled customizability in mechanical strength and degradation rates, exceptional biocompatibility, and a commitment to environmental sustainability, setting a new standard for next-generation medical materials.

Bezwada Biomedical also offers a versatile range of 3D printing absorbable polymers tailored for advanced biomedical applications. Its strong portfolio includes high-performance, biocompatible inks optimized for

Designing Tomorrow's Therapies Today

Bezwada Biomedical's strength is found in its combination of scientific depth and proven execution in the market. Dr. Bezwada holds more than 150 issued U.S. patents on absorbable polyurethanes, amino acid-based polymers, polyester amides, and polyoxaesters, an IP portfolio that fuels collaborations in orthopedics, neurosurgery, cardiovascular repair, and tissue engineering.

These collaborations often span the full product lifecycle, from concept through GMP manufacturing. In addition to supplying materials, Bezwada Biomedical brings regulatory strategy, scalability planning, and market positioning, helping partners navigate the complex path from idea to approved product. Its integrated approach accelerates commercialization and increases the likelihood of success in a competitive medtech landscape.

At the core of Bezwada Biomedical's platform is ECO-BIOMAXX™, a patented bio-based polyurethane platform crafted from renewable, bioabsorbable resources. Unlike conventional petroleum-derived

precision and reliability in medical 3D printing. It also provides a robust line of bioinks specifically developed for organ bioprinting, supporting cell viability and structural integrity. Bezwada is proud to collaborate with leading companies in the field, driving innovation in tissue engineering and regenerative medicine.

> ***At Bezwada Biomedical, we design polymers from the molecular level up, transforming breakthrough chemistry into reliable, absorbable solutions that meet medicine's evolving needs and improve patient outcomes worldwide***

With a global footprint, a portfolio of proven products, and a leadership team steeped in scientific rigor and industry know how, Bezwada Biomedical continues to redefine what is possible in absorbable biomaterials, translating ambitious science into innovations that improve lives worldwide. LS