MIR IMRAN

Serial entrepreneur, CEO of Rani Therapeutics and inventor of the robotic pill

Mir Imran, inventor, founder and CEO of Rani Therapeutics, shares his story and discusses how his latest business is driven by the desire to innovate, create and solve one of the most pressing problems in modern medicine

WRITTEN BY HARRY MENEAR
As a serial entrepreneur, what would you say are the key qualities of a successful startup?

A successful startup is willing to take risks and fail frequently. Taking big risks, learning from every failure, and making an effort to fully understand every facet of a problem before pursuing a solution are important tenants to help create a culture that embraces innovation.

Choosing the right problems to address, too, is essential. If you are merely iterating on other people’s ideas, you aren’t inventing. Look at the big unsolved problems. Break them down. Understand them. Find solutions that no one had ever thought possible. I focus on big, unsolved problems and that has led to the creation of a number of disruptive innovations.

There can be big rewards that come from innovations like Rani Therapeutics, but there are also countless risks along the way. I have been fortunate to have had many successes in my career, but I also have had my fair share of failed concepts or lackluster results. Before I had success with the first Implantable Cardioverter Defibrillator (ICD), I had two failed companies. I never let those failures bring me down; rather I saw them as opportunities to learn and evolve. Each experience gave me further clarity, led to deeper insights, and helped inform future decisions. If I had given up after my early failures, life would have turned out very differently for me.

As someone with over 500 patents to their name, which technological development have you been most proud of so far? I’m driven by identifying unsolved or poorly addressed problems in medicine. Over the past four decades, I’ve
built a number of companies that have addressed multiple problems, from lockboxes used by real estate agents to full-body airport scanners used across the country and the world, and radically improved treatments for chronic pain.

While I'm proud of all my inventions, today I'm on a mission to solve one of the biggest challenges in medicine: replacing painful injections with a pill to treat hundreds of millions of patients with chronic disease. When I learned that pharma companies have tried and failed for more than 50 years to convert biologic injections into pills, I saw that as a juicy problem to solve. The main challenge is that the gut hosts enzymes designed to break down proteins. If ingested, biologic drugs are degraded before they can be absorbed. That's why you haven't seen oral insulin or oral Humira yet. At Rani Therapeutics, we think we have solved the riddle with the RaniPill™ capsule.

**Could you tell me a little about Rani Therapeutics and your new robotic pill? What advantages does the pill have over traditional subcutaneous injections?**

There are millions of people around the world living with chronic conditions that can only be treated with painful daily self-injections. Yet even when such medicines are readily available, patient compliance is very low. Patients don't want to inject themselves and avoid the treatment even if it affects their health. Achieving oral delivery of biologics is considered the holy grail of drug delivery, and we think we have come up with the solution with the RaniPill™ capsule. The RaniPill™ capsule appears to the patient to be an ordinary pill, but inside is a "mini auto-injector" that delivers the drug directly into the intestinal wall. Our robotic indigestible capsule has a special coating which gets it through the acidic environment of the stomach. When it reaches the intestinal wall, the RaniPill™ then transforms, revealing the mechanism inside. The RaniPill™ aligns itself to inject a drug into the intestinal wall, where it is picked up quickly and circulated in the bloodstream. The patient doesn't feel anything because the intestines have no sharp pain receptors.
While other organisations have followed our lead and are now pursuing similar concepts, Rani’s early start in the pursuit of a pill to replace painful injections has secured our position as a pioneer of robotic pills. We have conducted more than 100 preclinical studies proving that our technology works – and delivers the same amount of drug as a subcutaneous injection. We have also begun testing in humans – specifically testing the safety and tolerability of the RaniPill™ capsule without the drug. Those studies were successful, demonstrating that the RaniPill™ capsule deployed with no feeling or perception by the subjects and the remnants passed out of the body. We are moving towards human testing with the RaniPill™ capsule loaded with a drug (Octreotide, a drug used for the treatment of acromegaly) this year.

Given your experience as a leader of business units and enterprises, how do you ensure that you attract, utilise and retain top talent?

It is our intent to attract and retain innovative thinkers to help us build the future of biologic drug delivery, and we believe our culture has helped us tremendously in that regard. I’m proud that today Rani’s workforce is more than 50% women, and that 20% are over 50 years old. Our employees are ethnically diverse as well, drawn from more than 10 countries. For me, building a well-rounded, holistically representative workforce means finding the best talent regardless of a person’s age, gender, or ethnicity.

A criticism that’s often levelled at pharmaceutical and tech companies is that they’re increasingly driven by the business case as opposed to the desire to innovate and improve people’s lives. How do you ensure that Rani Therapeutics doesn’t lose sight of the goal of helping humanity?

Mir Imran

Mir Imran is the Chairman and CEO of Rani Therapeutics, an exciting company that has developed a unique approach for the oral delivery of large drug molecules including peptides, proteins, and antibodies. Imran is also the Chairman & CEO of InCube Labs, a life sciences R&D lab focused on developing and commercialising breakthrough medical innovations. Rani spun out of InCube in 2012. After attending medical school, Imran began his life as a healthcare entrepreneur in the late 1970s and has founded more than 20 life sciences companies since those early days, more than half of which have been acquired. Imran’s passion is creating novel technologies that have the potential to positively impact the lives of millions of patients and has become one of the leading inventors and entrepreneurs in the field. Imran holds more than 500 issued and pending patents and is perhaps most well-known for his pioneering contributions to the first FDA-approved Automatic Implantable Cardioverter Defibrillator (ICD).
“We have a truly multi-disciplinary team and that plays a critical role in understanding and framing problems, and ultimately devising solutions”

Mir Imran, inventor, founder, and CEO of Rani Therapeutics

We believe the best business case – a sustainable business case – can only be achieved when your products truly improve people’s lives. Our single-minded focus is always trying to understand problems, faced by patients and to try to alleviate some of those problems through innovation.

When it comes to building innovative products, it is critical to start with understanding the problem and do this from all facets. Once you truly understand the problem, the solution will reveal itself. Earlier in my career, I was quick to try to “solve” the problems. I would spend time dreaming up the solution to a problem that I did not fully understand. I soon learned that you must take the time to understand and appreciate the problem, look at it from all angles, listen to other opinions, and see what has been done before. If you pursue solutions too quickly without that complete understanding of the problem, you might miss the opportunity for a breakthrough.

In the case of Rani, where we are working to improve the lives of millions of people, I had to look at all of the ways that previous approaches have failed in order to come up with a radically different way to solve the problem. Rather than try to change the drug to make it viable orally, which had been tried many times before by other companies, I decided we needed to take a very different approach and instead change how the drug is delivered. Out of that concept, the RaniPill™ capsule was born.

What’s on the horizon for you, and for Rani Therapeutics? Where do you see your roadmap taking you in 2020 and beyond?

It’s an exciting time for Rani Therapeutics. We’ve done hundreds of preclinical studies by delivering more than 1,000 capsules. We’ve tested nine drugs, including insulin, GLP-1 [for diabetes] and Humira [for arthritis] and we’ve demonstrated that the RaniPill™ capsule delivery is equivalent to subcutaneous injection. Later this year, we’ll be testing a drug called Octreotide which treats patients suffering from acromegaly, a condition resulting from the body’s pituitary gland producing an excessive amount of growth hormone. Next year, we’ll be testing several other drugs in Phase I studies. We are getting closer to bringing the RaniPill™ capsule to patients and improving the lives of millions. It’s an enormous challenge that keeps us focused and motivated every day.”