

Interview with an Inventor

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The true value of scientific research goes beyond discovery; it lies in turning knowledge into real benefits for people and society. In this interview, Prof. Alaaldin Mohammad Alkilany, Professor of Pharmaceutics and Nanotechnology at Qatar University's College of Pharmacy, shares his philosophy of innovation and why translating science into practical solutions matters.



To begin, Prof. Alkilany, could you tell us about yourself and the key milestones that have shaped your career as a researcher and inventor?

I am a Professor of Pharmaceutics and Nanotechnology at the College of Pharmacy, Qatar University, where I also serve as the College's Research Coordinator. I earned my BSc in Pharmacy from Jordan University of Science and Technology and my PhD from the University of Illinois in 2006, followed by a postdoctoral fellowship at the University of Georgia, USA. My career has combined pharmaceutical product development in industry—within FDA-approved international companies—with academic research, leading me to focus on translational innovations in nanotechnology and drug delivery.

Among the milestones I am most proud of is my contribution to Q-Silvano® Gel, the first pharmaceutical product developed and commercialised from concept to market through a collaboration between Qatar University and a Qatari partner, QLife Pharma. I am also filing several innovation disclosures and patents. My research has been recognised internationally, including my listing among the top 2% most-cited scientists worldwide and the prestigious Alexander von Humboldt Fellowship in Germany.

What drives you to translate scientific research outcomes into innovations and applicable products?

My focus is on bridging the gap between advanced research and real, practical impact. Academic publication matters for advancing knowledge, but my ultimate goal is to translate the pharmaceutical sciences into products and solutions that meet real clinical and societal needs. This may mean safer, more effective wound-care products, gentler therapeutic alternatives for children, or solutions to specialised challenges in veterinary medicine. I believe in "bench-to-bedside" and "bench-to-market" approaches: every project is a chance to design a solution that makes a direct, meaningful difference in people's lives.

Q-Silvano® Gel is one of your most prominent innovations and an important milestone for Qatar. Could you tell us about its concept and impact?

Q-Silvano® Gel is an advanced hydrogel enriched with silver nanoparticles, designed to treat complex wounds such as burns, traumatic injuries, and diabetic foot ulcers. It is a landmark success for Qatar: the first pharmaceutical product developed and commercialised from concept to market, and a rare example of a successful partnership between an academic institution—Qatar University—and a local industry partner,

QLife Pharma. Preparing silver nanoparticles in the laboratory at the 10–100 mL scale is fairly simple chemistry; scaling up to manufacture 500 kg, however, was a real challenge—one we solved, taking a Qatar University innovation to the local market.

The product is officially registered with the Ministry of Public Health, which we are very proud of. It also contributes directly to Qatar National Vision 2030 by strengthening national pharmaceutical security and showing the country's capabilities in innovation and local manufacturing.

Your innovations extend beyond wound care to promising drug-delivery and nanotechnology solutions. What are some of these?

Certainly. Beyond Q-Silvano®, one innovation under development is the Oromucosal Reservoir Drug Delivery System (ORDS)—a needle-free platform that delivers medications, such as lidocaine, directly into the oral cavity. It offers a more comfortable, less distressing alternative to conventional dental injections, especially for children and people with needle phobia, and it stays in place longer than ordinary oral gels. Further ORDS-based therapeutics are in progress, led by several talented postgraduate students at Qatar University.

In parallel, we have developed a stable metallic nanolabel technology that tackles a key challenge in nanomedicine: tracking drug-carrying nanoparticles inside the body. It allows accurate, high-resolution tracking of drug carriers, supporting more precise diagnostics and more effective targeted therapies.

For both innovations, provisional patent applications have been filed and approved by the Qatar University Innovation and Intellectual Property Office, and we are working toward full patent registration.

We understand that you have a distinctive achievement in the field of falcon medicine. Could you share the details of this project?

This project shows how the pharmaceutical sciences can meet a unique national need. Falcons hold special cultural significance in Qatar and across the Gulf. Through our collaboration with the Oryx Falcon Veterinary Clinic, we identified an important clinical problem: veterinarians were preparing drug suspensions from human azithromycin capsules using water, which caused rapid sedimentation and a high risk of inaccurate dosing and chemical instability.

To solve this, we developed an optimised pharmaceutical vehicle using a combination of suspending agents. The formulation gives a stable, uniform suspension, prevents sedimentation and degradation, and ensures accurate, safe, and effective dosing every time. The same platform may also allow other therapeutics to be compounded for falcons.

What advice would you give to young researchers aspiring to enter the field of innovation?

Always start with the problem, not the technology—the true value of any invention lies in the solution it provides. Talk directly with end users, whether clinicians, patients, veterinarians, or community members, to understand their real needs. Design your research with a clear path toward practical use. And never hesitate to work across disciplines, because the most impactful innovations often emerge where different fields meet. I give my students the same advice about meaningful research: love it, live it, and translate it.

How important is Qatar University's research environment and innovation ecosystem in supporting inventors and helping them translate ideas into real-world applications that serve the labour market?

Qatar University has been a cornerstone of this journey—not only through advanced research infrastructure, but also by building an ecosystem that supports innovation and aligns it with labour-market needs. This support, particularly from the Research Support Office, gives researchers the confidence to turn their results into high-value applications and products that benefit society and the national economy. I should also mention the Innovation and Intellectual Property Office, which has helped evaluate promising ideas, protect intellectual property, and manage patent processes—strengthening opportunities for development and transfer to industry partners.

In light of these remarkable achievements, whom would you like to acknowledge for their support throughout this journey?

Innovation is rarely an individual effort. These achievements would not have been possible without the teamwork and contributions of researchers, students, and industry partners. I sincerely thank my colleagues Dr. Ousama Rachid, Dr. Salih Muhsin, and Dr. Khalid Alansari for their valuable, long-standing collaboration in Qatar.

I also thank our partners at QLife Pharma—especially the CEO, Dr. Ahmed Al-Mohannadi, together with Dr. Ali Al-Mohannadi and Dr. Omar Salim—who played a pivotal role in bringing Q-Silvano® to market. For our veterinary work, I am deeply grateful to Mr. Nasser Al-Jaber of the Oryx Falcon Veterinary Clinic.

I also acknowledge the supportive environment at Qatar University: the College of Pharmacy, the QU Health Sector, the Central Laboratories Unit, the Laboratory Animal Research Center, and the Research Support Office.

Finally, I thank Qatar University and the Qatar Research, Development, and Innovation (QRDI) Council for their vital financial support, which turned these ideas into reality.

