Israel Innovation Authority Invests □75M to Establish Groundbreaking R&D Lab for Bio-Devices and Bio-Chips

Innovative bio-convergence lab to propel Israel as a global leader in smart medical diagnostics, environmental restoration, and sustainable energy generation


Dror Bin, CEO, Israel Innovation Authority

JERUSALEM, ISRAEL, January 29, 2025 /EINPresswire.com/ -- The Israel Innovation Authority announced today a landmark investment of □113 million to establish Israel's first laboratory dedicated to bio-devices and bio-chips. This initiative, led by Israel Aerospace Industries (IAI) and Baccaramos Technologies, aims to position Israel at the forefront of global innovation by developing advanced technologies such as intelligent medical implants, smart environmental sensors, and bio-based energy solutions. Integrating biology, engineering, and artificial intelligence, the lab will serve as a critical growth engine for Israel's biotech sector, offering unparalleled R&D services to drive innovation across multiple industries.

This is a strategic breakthrough aimed at placing Israel at the heart of the global technological landscape. The new laboratory will provide unique R&D services across numerous sectors, enabling Israeli researchers and companies to compete internationally, and will also serve as a significant growth engine for Israel's local bio-tech industry.

Dror Bin, CEO of the Israel Innovation Authority: "This initiative will solidify Israel's global standing. As part of the broader vision outlined in the National Bio-Convergence Plan, this new lab will establish Israel as a global leader in the field. This partnership will equip Israeli companies with the advanced tools and infrastructure needed to pioneer bio-chip and bio-device

projects locally – in medicine, energy and agriculture - from concept to reality, without reliance on costly international services. The lab is expected to serve as a hub of knowledge, research, and development, attracting foreign investment, fostering international collaborations, and drawing top talent to Israel. This lab isn't just an investment in infrastructure – it's an investment in our future and reflects the Israel Innovation Authority's commitment to diversifying and growing Israel's high-tech sector, even amid increasing global competition."

While primarily associated with healthcare, bio-devices are now demonstrating utility across energy, environment, water, agriculture, and security sectors. For example, bio-devices that generate electricity from biological processes make it easier and cheaper to produce power from waste. Devices can release bacteria that break down organic materials via cellular respiration, simultaneously purifying contaminated water and generating electricity.

Vision in Action: Collaboration Between Innovation Leaders

Following a rigorous selection process, the partnership between Israel Aerospace Industries and Baccaramos Technologies was chosen to lead the establishment of the lab:

- Israel Aerospace Industries (IAI) is a global leader in developing advanced technologies across diverse sectors, providing innovative systems to customers in over 100 countries. IAI boasts expertise in 3D printing, advanced materials, machine learning, simulation, and multidisciplinary system integration.
- Baccaramos Technologies, based in Caesarea and established in 1998, provides advanced packaging solutions for chips and optical components. The company operates state-of-the-art cleanrooms and chip assembly equipment, and offers design, manufacturing, failure analysis, and consultancy services in the fields of chip assembly, devices and optic components, amongst others. Baccaramos has an expert staff, with vast experience working with hundreds of companies in Israel and worldwide, including R&D companies in the field of bio-convergence.

In addition to the extensive and proven experience of IAI and Baccaramos in the field of technology and engineering, the collaboration will also leverage the expertise of domestic and international partners in biology including Fraunhofer IGB and Ginkgo Bioworks, as well as NVIDIA in the field of computing and AI, NY CREATES in the field of chip manufacturing, and others.

A Game-Changing Laboratory

The bio-chip and bio-device lab will offer Israeli companies access to world-class technological infrastructure and advanced R&D services, including prototyping, small-scale production, and validation. The technologies developed in the lab are expected to accelerate drug development, diagnostics and monitoring, and to make biological production processes cheaper, more exact, and more accessible.

Bio-chips and bio-devices serve as essential tools to revolutionize diagnostics, detection, and

monitoring across humans, animals, plants, water, air, and soil. The ability to manipulate individual cells within a bio-chip (using a process known as microfluidics) to perform biological processes in microscopic volumes and measure changes with molecular sensitivity through nanotechnology essentially "condenses" into a small chip what has, for decades, required large, expensive biological labs.

Bio-convergence integrates biological science with engineering, software, and computational technologies. This emerging field is poised grow rapidly and to transform fields such as medicine, environment, energy, agriculture, food, security, and more.

Examples of Potential Developments in the Lab:
1. Purifying Contaminated Water: Smart devices combining advanced bacteria to clean water while generating electrical energy through cellular respiration.
2. Air Pollution Monitoring: Bio-chips detecting molecular-level toxins in real-time, enabling urban and industrial air restoration.
3. Marine Environmental Restoration: Biological devices breaking down organic and plastic waste in oceans, purifying water, and generating energy.
4. Rapid Infectious Disease Diagnosis: Smart chips diagnosing viral or bacterial diseases within minutes from small samples, providing immediate, personalized treatment recommendations.
5. Autonomous Biological Security Systems: Devices detecting explosives or hazardous materials at border crossings with tailored neutralizing responses.
6. Smart Food Production: Biological technologies enabling sustainable food growth in harsh conditions while minimizing waste and preserving nutritional value.
7. Toxic Material Cleanup: Sensors designed to identify and rehabilitate areas contaminated by toxic substances in water or soil through precise biological reactions.
8. Early Public Health Monitoring: Urban sensors detecting early outbreaks of infectious diseases and preventing epidemics.

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