

Genome sequencing: work of new laboratory from Tec and FEMSA



Tec de Monterrey and FEMSA unveiled their **Tec BASE Genome Sequencing Laboratory** during the **51st Research and Development Conference**.

This space seeks to help with **genome sequencing projects** for **academic and research institutions**, as well as for **private industry**.

*“In the laboratory, there are resources to sequence **DNA fragments**, such as **proteins** of interest to the **pharmaceutical industry** to **complete genomes** on a mass scale,”* shared **Rocío Chávez Santoscoy**, Tec **BASE** leader.

One of the center’s main objectives is to support sequencing, from **complex organisms** to **microscopic organisms** such as the **SARS-CoV-2 virus** that causes **COVID-19**.

*“We’re in the **genomic era**, in which genetics is a major **tool** in **biomedical research** and has been essential in the fight against **COVID-19**,”* added **Lorena Guillen**, director of the **FEMSA Foundation**.



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A Mexican space dedicated to the genome

The laboratory is located inside the **FEMSA Biotechnology Center** on the **Tec's Monterrey Campus**, which is part of the **Tec's School of Engineering and Sciences**.

Tec BASE has a **team that is specialized in genome sequencing** from American company **Illumina**, one of the most prominent in the field.

Rocío Chávez tells us that the laboratory has **4 sequencing machines**, including a **NovaSeq** machine, which is **only the third in Latin America**.

*"Our vision is for **Tec BASE** to become a genome sequencing center of **excellence**,"* Chávez added.

In addition, she says that the laboratory works in a **multidisciplinary way**, so there's an environment where **not only is the genome sequenced**, but **quick solutions** can be given to various areas with the **data**.

Some of the projects that can be carried out are in the areas of **public health**; diagnosis and **new treatments**; **Industrial production** innovation; and **ecosystem** generation; as well as **food preservation** and design.



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The importance of a sequencing laboratory in Mexico

What is a **sequencing laboratory** used for, and **why is it necessary**?

Guillermo Torre, Vice-President of Research and Rector of **TecSalud**, assures us that the biggest **example** of the **importance** of these spaces is the COVID-19 **pandemic**.

*“The **success we have** today that **we’ve enjoyed** with the **vaccine** is due to advances in **genomics**,”* he said.

Torre states that if we’d faced a pandemic without knowledge of the genome, **it wouldn’t have been possible to create vaccines against COVID-19** as quickly as they were created.

He also says that sequencing laboratories will allow us to understand **other variants** and **other viruses** at a **faster speed**, and to be **prepared** to face them.

*“The ability to sequence gives us the opportunity to create **vaccines for the future**,”* he added.



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Other **applications** that the doctor notes are in **areas** such as **nutrition**, the **development of “super” products**, and the analysis of **new plants** that could be **more resistant to the environment**.

He also highlighted the importance of **Tec LABS** having an **ecosystem** that not only collects information, but that also has the **ability to analyze** and **interpret the data**.

*“Opening this **sequencing laboratory** today is **a dream come true** for many.*

*“It’s also a **commitment** to focus our efforts on this intersection of major disciplines,” he said.*

For his part, Manuel Zertuche, Dean of the Tec’s School of Engineering and Sciences, highlighted the importance of providing a space **to decipher the code of life: the code to the genetic makeup of all living beings**.

*“**Genome sequencing** opens up the possibility of understanding, preventing, and even predicting the manifestations of disease; safe formulas and food security; or rational use of various natural resources,” he illustrated.*

Projects from Day 1

Tec BASE leader Rocío Chávez says that even **before** its **opening**, they’d already worked on **projects** and forged **partnerships** with other organizations.

*“We’re currently working on **projects** with **Tec Salud**, the **Mexican Social Security Institute**, the **Federico Gómez Children’s Hospital of Mexico**, and the **Autonomous University of Baja California**,” she said.*

“Having all this equipment in the country allows us to carry out **suitable sequencing**, and also do it at a **lower cost**,” added Sánchez.



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Similarly, **David Garza Salazar**, Tec de Monterrey’s Rector and Executive President, assured us that this laboratory is **one more step** toward **research advances** in Mexico.

“In the context of our country, we focus on what we don’t have, or what we lack, but I think it’s important to see other aspects.

*“We have a **committed company** like **FEMSA** and a **committed institution** like the **Tec** with this capacity for execution. These are difficult things, but at the end of the day, someone has to start,”* underlined Garza.

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