Tec scientists looking to use scorpion venom to treat cancer

Blue scorpion venom will be the **main agent** used by **Tec de Monterrey** **specialists** to develop an adjuvant therapy against diseases like **cancer**, as well as to **scientifically validate its use**.

*“One of the properties of blue scorpion venom is that it’s rich in a mixture of **proteins and peptides,** which are said to have beneficial attributes,”* explained **Jorge Luis Díaz**, one of the Tec members involved in the project.

This study by the Tec’s **School of Engineering and Sciences** and **School of Medicine and Health Sciences** will be conducted in collaboration with **LIFESCOZUL**, a company with **presence** in several countries across **the Americas** that specializes in **studying the venom** of this **species,** which is **native to Cuba.**

*“This venom has been used as a natural remedy against cancer. However, they want to work up a deep **scientific background** and that’s why we’ve partnered with them, since we want to complement and contribute to this research,”* said Díaz.

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Working on this research alongside **Jorge Luis Díaz Gómez, a full professor of Biomedicine and Technology**, will be **Dr. Fabiola Castorena Torres, a research professor** at the **School of Medicine and Health Sciences.** These two will be **in charge** of **working on this project**.

Joining them are **Dr. Silverio García Lara**, research professor and Head of the **Nutriomics research group's AgroBio unit**, and **Dr. César Puente**, Academic Exploration Director of Bioengineering and Chemical Processes.

"This venom has been used as a natural remedy against cancer. However, they want to work up a deep scientific background." - Jorge Luis Díaz

How they'll analyze the blue scorpion venom

As part of this **partnership** between **Tecnológico de Monterrey and LIFESCOZUL, a number of laboratory tests** will be carried out to **strengthen the scientific evidence** for this project.

*"Firstly, the Biotechnology Center at the School of Engineering and Science will be in charge of analyzing this molecule and **validating** its status as a treatment.*

*"Subsequently, we'll move on to a **preclinical evaluation** phase at the School of Medicine and Health Sciences,"* said César Puente.

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However, in order to **reach the preclinical trial stage,** we must first evaluate **the toxic effects** of the **molecules** and then **assess their therapeutic potential**.

*"We're going to validate the **efficacy and toxicity** of these molecules through **in vitro** systems, i.e., in cells, and then we're going to evaluate the efficacy and toxicity through **in vivo** models in rodents,"* explained Dr. Fabiola Castorena.

She added that these **tests** will be able to **demonstrate the effect** of this molecule on **healthy cells** and **cancer cells**.

*"These peptides are a therapeutic source of very precise active molecules that, unlike other molecules, we can **identify and synthesize**. This allows us to take a giant leap forward in terms of pharmaceutical application,"* added Silverio García.

"The Biotechnology Center at the School of Engineering and Science will be in charge of analyzing this molecule and validating its status as a treatment."- César Puente

Validating its therapeutic effects

Another of the **objectives** which **this research team is focusing on** has to do with **studying active biomolecules** and searching for their different **therapeutic effects,** said Silverio García.

*“There’s a well-known global trend to search for **alternative therapies** to mitigate against some of the treatments that are normally very aggressive in treating chronic-degenerative diseases.*

*“From the technical-scientific point of view, it is now possible to reconcile the use of **natural sources** in the discovery of new drugs of natural origin,”* he noted.

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“It’s important to clarify that this isn’t a natural remedy, it’s an adjuvant therapy for these diseases.” - Silverio García

The specialist added that **peptides aren’t new molecules**, they’re the **pillars** from which **every protein we possess are built.**

*“Once these molecules enter our bodies, they unfold and form these famous peptides, which are **no more than a chain of 100 amino acids.** They have various effects, which include neurological effects, arterial pressure regulation, and therapeutic effects on the control of these diseases,”* he said.

It was **Dr. Jorge Luis Gómez** who **began the search** for these **new biopeptides** in **traditional plants** such as **corn. They’ll** now **be transferring** that experience to **analyzing blue scorpion venom**.

*“The work carried out by both Dr. Jorge and Dr. Fabiola has allowed us to **move** this model to any other natural alternative source.*

*“It’s important to clarify that this isn’t a natural remedy, it’s an **adjuvant therapy** for these diseases. To take it to the pharmaceutical level, we have to gather a lot of scientific information,”* acknowledged the researcher.

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Strengthening the relationship between institutions

*“The fact that Tec de Monterrey can **team up** with companies in order to solve real-world problems gives us a very strong institutional commitment,”* said César Puente.

This **partnership** will take shape with the **signing of an agreement** between **both institutions** that **will benefit** the **development of new methods, alternatives, and solutions** to problems such as chronic-degenerative diseases.

*“We aren’t saying we’re going to find the answer to cancer, but we’re going to **contribute** to the **treatment** of all these people.*

*“Our commitment is to **health at a national and international level**, since we wouldn’t just be helping colleagues in Mexico, but also all those who are in Central and South America,”* he emphasized.

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