VareseNews

SarsCoV2 protein being produced in Insubria's biotechnology laboratory

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The **Protein Factory 2.0 laboratory** of the **Department of Biotechnology and Life Sciences** of **Insubria University**, which is directed by **Professor Loredano Pollegioni**, is producing the SARS-CoV-2 S (Spike) protein, which covers the coronavirus responsible for Covid-19.

The S protein is critical for the infection, as it determines the specificity of the virus to the epithelial cells of the respiratory tract. "The S protein, which has been produced in a hamster ovary cell line in a form identical to the natural one, is essential for a lot of research, but its use is limited by its high commercial cost, of millions of dollars per gram," Pollegioni explained.

"This **protein** is **difficult to produce in a recombinant form**, because of its large size (over 1260 amino acids)," said **Elena Rosini**, the project manager, "and because it has to maintain the characteristics (glycosylation) of the natural protein produced by the virus when it infects our cells."

In addition to the whole S protein, the portion that contains only the receptor binding domain (RBD) has been produced. The two versions of the S protein are produced on a laboratory scale in Varese, and are **now available to Italian academic laboratories** that are involved in various research projects on the diagnosis and treatment of the infection, such as the production of antibodies for the development of analytical systems, such as the rapid saliva test, designed by a team from the University of Insubria.

The "Protein Factory" in Varese is a laboratory which is dedicated to the production and study of proteins of human origin and of biomedical interest. Pollegioni explained, "We produce the **alpha-synuclein protein involved in Parkinson's disease**, the HSP70 protein, proline dehydrogenase and phosphoglycerate dehydrogenase, which are involved in **cancers and rare diseases**, the proteins D-aspartate oxidase, pLG72 and D-amino acid oxidase, which are involved in **schizophrenia** and **neurodegenerative diseases**, **HIV protease**, etc. These proteins are used all over the world, by both academic laboratories and pharmaceutical companies, to understand the molecular foundations of diseases and to develop innovative therapeutic approaches."

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