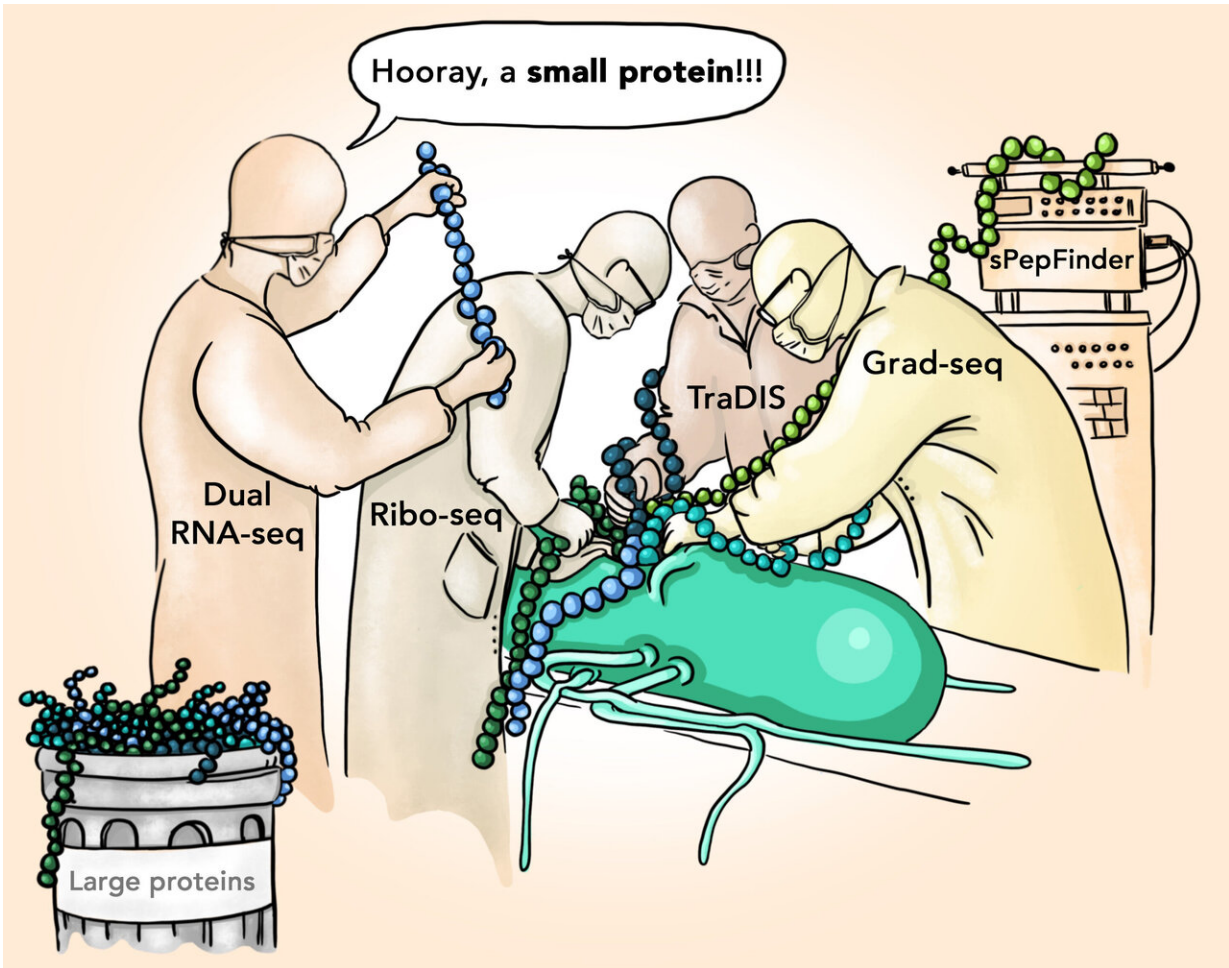


New salmonella proteins discovered

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The combination of different bioinformatics methods has brought new small proteins from salmonella to light. Credit: Sandy Westermann / SCIGRAPHIX

Salmonella are bacteria that can cause food poisoning with severe

diarrhea. If they penetrate from the intestine into the blood system, this can lead to sepsis, life-threatening inflammatory reactions in the entire organism. Since salmonellae are also becoming increasingly resistant to antibiotics, new approaches are being sought to combat them.

An international research team, led by scientists from Würzburg, shows how to succeed in this search in the new research journal *microLife*.

More than 100 new proteins found

In a bioinformatic reassessment of the Salmonella genome, the team led by JMU doctoral student Elisa Venturini identified many unknown small proteins that may play a crucial role in infection. As a result, the number of known small Salmonella proteins has grown by 139 to over 600.

The small [protein](#) MgrB, which consists of 47 amino acids, stood out in the analyses. If the gene containing the blueprint for this protein is switched off, the salmonellae can no longer infect human cells. Although the protein had been studied before, this important function had not been recognized. This has only now been achieved thanks to a new combinatorial approach. Among other things, three data sets that had been generated in earlier infection studies were used for this purpose.

"Hopefully our approach will provide a blueprint that can also be applied to other [organisms](#) for which [data sets](#) already exist," says Venturini. The study has clearly shown that the method can still bring new relevant genes to light even in comprehensively studied organisms such as [salmonella](#): The [scientific community](#) now has a priority list of previously unknown infection-related small salmonella proteins for further investigation.

More information: Elisa Venturini et al. A global data-driven census of Salmonella small proteins and their potential functions in bacterial

virulence, *microLife* (2020). [DOI: 10.1093/femsm/uaaa002](https://doi.org/10.1093/femsm/uaaa002)

Provided by Julius-Maximilians-Universität Würzburg

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