341 Research paper

Yeast-secreted, dried and food-admixed monomeric IgA prevents gastrointestinal infection in a piglet model

by Virdi, V., Palaci, J., Laukens, B., Ryckaert, S., Cox, E., Vanderbeke, 2019 Nature Biotechnology 37: 527-530

In **Significant Impact Groups:**

Feed / gut health \ Feed additives and supplements

Species targeted: Pigs;

Age: Young;

Summary:

With the rapidly increasing knowledge of the role of the gut microbiome in diverse aspects of human and veterinary health, antibody-type drug-mediated methodology to specifically interfere with the microbiome or host factors in the gut is needed. Oral antibodies that interfere with gastrointestinal targets and can be manufactured at scale are needed.

This paper shows that a single-gene-encoded monomeric immunoglobulin A (IgA)-like antibody, composed of camelid variable single domain antibodies (VHH) fused to IgA Fc (mVHH-IgA), prevents infection by enterotoxigenic Escherichia coli (F4-ETEC) in piglets. The mVHH-IgA can be produced in soybean seeds or secreted from the yeast Pichia pastoris, freeze- or spraydried and orally delivered within food.

Future farm-based trials en route translation of this application, will enable impact assessment of mVHH-IgA on F4-ETEC-caused diarrhea and weight loss.

Where to find the original material:

https://www.nature.com/articles/s41587-019-0070-x ; https://doi.org/10.1038/s41587-019-0070-x

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