



Folium Science (AG)

Novel targeted treatments against bacterial diseases in animals and plants

What is the opportunity?

Folium Science are a UK-based biotech company who develop novel, treatments for bacterial diseases in animals and plants, producing targeted antibacterial products for both the veterinary (pigs and chickens) and agricultural (high-value crop plant) markets.

The marketplace for Folium's products is vast. Bacterial diseases cause losses to global farming worth hundreds of millions of pounds annually. Current treatment options, particularly for agricultural diseases, are limited and often environmentally harmful.

There is potential for the treatment of almost any bacterial pathogen, including many emerging and intractable diseases. The attainable market in animal nutrition is estimated at \$7bn and in agriculture of \$10bn. The global crop protection market is approximately \$60bn per annum, and comprises weed, insect and fungal control products.

The company has global IP protection, freedom to operate and a strong portfolio of preliminary data.

What are the technologies?

Folium's patented Guided Biotic approach uses CRISPR-CAS naturally found in bacteria to specifically and effectively kill pathogenic bacteria without disrupting the wider microbial ecosystem of the host.

The company has licenses and extensive intellectual property covering the exploitation of this technology in the Agriculture and Food Industry with over 7 patent families, where 4 have granted in the US with 51 filings across territories.

Dr Malone has led the application of Guided Biotics to crop protection, complementing and extending earlier work targeting animal health and nutrition.

What is the potential impact?

Folium's Guided Biotic products have the potential to safely and effectively treat a wide range of harmful pathogenic bacteria without damaging the natural microbial ecosystems of the gut or the soil. This will enable farmers to treat disease and reduce yield losses with a safe, environmentally friendly alternative.

The biological crop protection market is currently valued at around \$3 – 4bn a year and is growing. Folium's products may be applied as a conventional over-the top spray (Folium and the John Innes Centre have shown positive results) or as seed treatments for early protection when the plant is most vulnerable.

What is the strategic intent?

Folium has been successful in gaining investment in the animal health application side of the business, and the company is now seeking investment and/or co-development partners to expand the plant science side of the business.

With two product candidate prototypes already developed their strategy will be to take one core product to market whilst expanding the technology adoption across the industry through partnerships via development, manufacturing or distribution.



FOLIUM Science



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- Stefanato et al (2019) **Pan-genome analysis identifies intersecting roles for Pseudomonas specialised metabolites in potato pathogen inhibition** bioRxiv 783258

- US Patents 10,463,049 B2; US 10,506,812 B2 **Altering microbial populations and modifying microbiota**