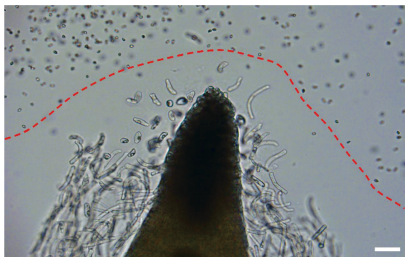
Research focuses on 4 transdisciplinary areas: glycomolecules and root defence, glycomolecules and cell growth, the study of N-glycosylation of proteins in microalgae, and biostimulants and glycomolecules. Internationally recognised and involved in two European projects (CRISPit and Glyco-N), GlycoMEV uses microalgae to produce innovative biomedicines. The patents obtained are now being developed and exploited by the start-up Alga Biologics, which was created at the end of 2021 and is housed on the laboratory's premises. The laboratory is also working on the production of antibodies directed against cancers and the production of erythropoietin, a hormone used to treat people suffering from anaemia (PhaeomAbs project under the PIA Grand Défi Biomédicament, DAGENTA project – ANR PRCE, funding by the Normandy Region).

Aware of the close link between plant health, human health and global food security, GlycoMEV is seeking to gain a better understanding of the response of plants to environmental stress, with a particular focus on the root system (model of the "extracellular root trap" with the aim of increasing the production of antimicrobial molecules for root defence). Other research focuses on the contribution of biostimulants to plant physiology, to make crops more resilient in drought conditions, and on analysing the growth of the pollen tube, an essential stage prior to fertilisation and seed formation.



The extracellular trap in the soybean root forms a barrier (delimited by red dotted lines) preventing spores of the pathogen Phytophthora parasitica from colonising the root tip. Scale bar: 10µm. Extract from article: Ropitaux M. et al (2020) Cells. 30;9(10):2215. doi: 10.3390/cells9102215

Today, the laboratory's ambition is to develop new molecular and cellular tools to better understand the role of certain plant glycomolecules such as arabinogalactan-proteins (AGPs) in order to sort out and select the most promising candidates for

improving plant protection and/or reproduction. A great challenge ahead.

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