

Institut Jean-Pierre Bourgin

# Séminaire

Mardi 23 mai 2017, à 11h00

**Dr. Johnathan Napier**  
(*Rothamsted Institute, Harpenden, GB*)

## **Metabolic engineering of the omega-3 long chain polyunsaturated fatty acid pathway in transgenic Camelina saliva -making fish oils in plants**

We have been evaluating the possibility of producing omega-3 LC-PUFAs in different transgenic hosts, to provide a sustainable source of these important nutrients. Attempts to metabolically engineer plants with the primary algal biosynthetic pathway for LC-PUFAs has been successfully carried out in a range of species, allowing insights into factors constraining the accumulation of these fatty acids in non-native hosts. The use of lipidomics has allowed us to identify further metabolic bottlenecks in the transgenic pathway, ultimately leading to the breakthrough production of a transgenic oilseed crop which contains up to 30% omega-3 LC-PUFAs in its seed oil. This omega-3 trait represents probably the most complex plant metabolic engineering to undergo field-trialing to date, and as such, has implications for applied synthetic biology in agriculture. Recently, we have evaluated the use of glasshouse-grown GM Camelina seed oil as a replacement for fish oil in aquafeed diets, observing effective substitution in feeds for salmon and sea bream. These data further confirm the potential of these novel oils and their potential role in human nutrition, direct or otherwise.

**Johnathan Napier web page :** <http://www.rothamsted.ac.uk/people/napier>

Invité par Jean-Denis Faure  
**Ce séminaire aura lieu dans l'amphithéâtre, Bât. 10**