

Functional and structural exploration of the Abyssomicin C synthetic pathway

Alice Parnell¹, Matthew Byrne², Ainul Zulkepli¹, Paul Race¹, Christine Willis¹

¹University Of Bristol, Bristol, United Kingdom, ²University of Leeds, Leeds, United Kingdom
E-mail: ap16484@bristol.ac.uk

Abyssomicin C is a spirotetronate compound and the product of a polyketide biosynthetic pathway from *Verrucosporia maris*. Polyketide natural products are structurally and functionally diverse with numerous exploitable bioactivities. They have been developed as antibiotics, anticancer and cholesterol-lowering drugs, to name a few[1]. The Abyssomicin C Polyketide Synthase is encoded for by a 57 kbp gene cluster and comprises three central polypeptides (AbyB1-AbyB3) encoding seven polyketide extension modules, flanked by numerous genes encoding tailoring and regulatory proteins[2]. The Race group has explored the structure and function of several enzymes from this pathway through X-ray crystallography and mass spectrometry assays. This has enabled significant insight into the molecular basis of spirotetronate biosynthesis, and enzymes from this pathway could be exploited in the future for the production of non-natural tetronate containing polyketides.

[1] M. H. Lacoske and E. A. Theodorakis (2015) *J Nat Prod.* 10, 562-75

[2] E. M. Gottardi, et al. (2011) *ChemBioChem.* 12, 1401-1410

Keywords: [Abyssomicin](#), [spirotetronate](#), [polyketide](#)