Nutrient Acquisition by Prominent Members of the Human Gut Microbiota

Characterising Glycoside Hydrolase Enzymes in *Bacteroides ovatus*

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Introduction

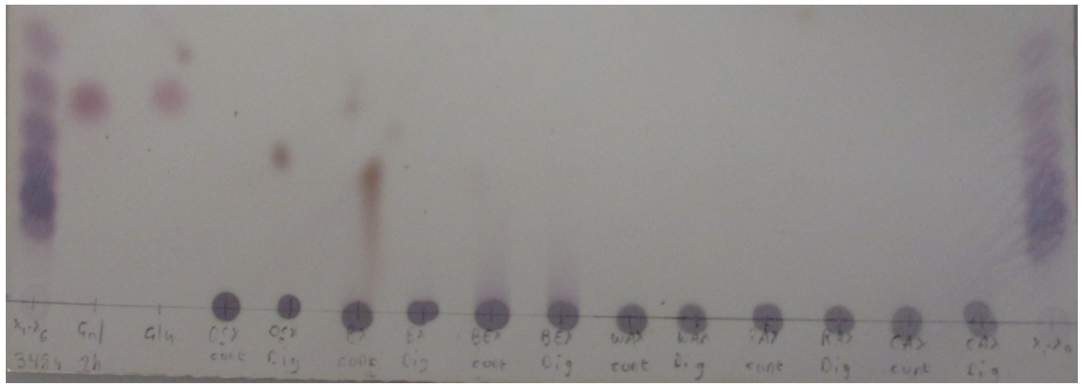
Bacreroides ovatus **are a prominent species of Gram-negative bacteria in the human gut**

Many genes of *B. ovatus* encode enzymes that belong to the Glycoside Hydrolase Family 97 (GH97)

Three of these were investigated:

- **BACOVA_00256**
- **BACOVA_01973**
- **BACOVA_03484**

BACOVA_03484 (1uM) vs. Various Xylans (0.5%) after 2 Hours Incubation



Thin-Layer-Chromatography plate showing 1uM BACOVA_03483 incubated with Xylans: Oat Spelt Xylan, Beech Xylan, Beechwood Xylan Wheat Arabinoxylan, Rye Arabinoxylan and cellulose-arabinoxylan.

BACOVA_03484 does not appear to target any of these xylans

BACOVA_00256, BACOVA_01973 and BACOVA_03484 show α-D galactosidase Activity

When our enzymes are tested against Poly-nitrophenyl α-D galactopyranoside a colour change is observed (data not shown)

This indicates that these enzymes exclusively target α-D galactoside bonds

A commercial Megazyme Lactose and D-galactose Assay kit was run between our enzymes and the complex sugars

- **Corn Xylan-Arabinose mixture**
- **Stachyose**
- **Galactomannan (Carab)**

It was not possible to tell which complex sugar our enzymes targeted due to unreliable data from these tests

Next Steps

It is believed that our three enzymes specifically only target α-D galactoside bonds

More sugars need to be tested using Thin-Layer-Chromatography or using a Megazyme Lactose and D-galactose Assay kit

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