

P026 Screening of a Recombinant GT library to Identify
New Biocatalysts

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Glycosylation is considered to be an important method for the structural modification of compounds with useful biological activities. Enzymatic glycosylation using glycosyltransferases (GTs), in comparison with chemical methods, is especially useful in the glycosylation of complex substances in a chemo-, regio and- enantioselective manner. Their use as biocatalysts is limited by the supply of activated sugars for the synthesis of the glycosides. The use of living cells expressing GTs has overcome this constraint and helps to avoid laborious isolation of the respective enzymes. However to-date, the availability of characterized enzymes and identification of their biocatalytical potential has been limited and therefore their use as biocatalysts constrained. Recently, a large multigene family of GTs has been identified in *Arabidopsis thaliana* and expressed as recombinant enzymes in *Escherichia coli*. Here, we report the development of a novel whole-cell screen for the identification of new glucosyltransferase biocatalysts within a recombinant enzyme library. This thereby allows a rapid identification of relevant biocatalysts for future use in chemical synthesis or fermentation. Following biotransformation of the substrate in *Escherichia coli* and subsequent cleavage of the formed glucoside, levels of D-glucose were assayed spectrophotometrically to measure biocatalysis. The utility of this method is demonstrated for two natural compounds (*trans*-resveratrol, daidzein) identifying a range of novel biocatalysts with varying regioselectivity.