University of Pretoria Yearbook 2018

Genetic manipulation of microbes 364 (MBY 364)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	18.00
Programmes	BSc Biochemistry
	BSc Biotechnology
	BSc Genetics
	BSc Human Genetics
	BSc Human Physiology
	BSc Microbiology
	BSc Plant Science
	BScAgric Plant Pathology
Prerequisites	BCM 251, CMY 127, GTS 251, GTS 261 and MBY 251
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Microbiology and Plant Pathology
Period of presentation	Semester 2

Module content

Isolation of clonable DNA (genomic libraries, cDNA synthesis) cloning vectors (plasmids, bacteriophages, cosmids) plasmid incompatibility and control of copy number. Ligation of DNA fragments, modification of DNA end and different ligation strategies. Direct and indirect methods for the identification of recombinant organisms. Characterization (polymerase chain reaction, nucleic acid sequencing) and mutagenisis of cloned DNA fragments. Gene expression in Gram negative (E.coli) Gram positive (B.subtilis) and yeast cells (S.cerevisea). Use of Agrobacterium and baculoviruses for gene expression in plant and insect cells respectively. Applications in protein engineering, diagnostics and synthesis of useful products.