

UMBI CRISPR Workshop (18-20 October 2022)

Tuesday 18 October 2022 – Day 1

TIME	PROGRAMME
0800-0900	REGISTRATION AND BREAKFAST
0900	Lecture 1 : Introduction and principle of CRISPR/Cas9 technology <ul style="list-style-type: none">• Brief history• Genome editing tools• Principle of CRISPR-based genome editing
1015	SHORT BREAK
1030	Lecture 2: Cas9 variants and applications of CRISPR/Cas9 technology <ul style="list-style-type: none">• Cas9 Nickase & Dead Cas9• Base Editing & Prime Editing• Research and Clinical Applications• Ethical Issues
1145	SHORT BREAK
1200	Lecture 3: Starting your CRISPR experiment <ul style="list-style-type: none">• Developing Relevant Biological Questions• General Gene Knockout and Knock-In Experimental Designs• Choosing the Right CRISPR System
1300-1415	LUNCH BREAK
1415	Practical 1 – sgRNA design <ul style="list-style-type: none">○ Extracting genomic information (Ensembl Demo)○ sgRNAs designing (CRISPick Demo)○ sgRNAs target region visualization (Snapgene Viewer Demo)○ Primer design to amplify targeted region
1630	TEA & END OF DAY 1

Wednesday 19 October 2022 – Day 2

TIME	PROGRAMME
0800-0900	BREAKFAST
0900	Lecture 4 : CRISPR-Cas9 experimental workflow <ul style="list-style-type: none">• Knockout/Knockin workflow• sgRNA cloning strategy
1030	SHORT BREAK
1045	Practical 2 <ul style="list-style-type: none">○ Expression vector digestion○ sgRNAs annealing○ sgRNAs ligation○ Bacteria transformation
1300-1415	LUNCH BREAK
1415	Lecture 5: Cells delivery and selection of positive cells <ul style="list-style-type: none">• CRISPR components delivery into the cells• Determination of delivery efficiency• Antibiotic selection (pooled cells isolation)• Single cell sorting and dilution
1515-1530	SHORT BREAK
1530	Practical 3 <ul style="list-style-type: none">○ CRISPR plasmids transfection○ T7E1 endonuclease assay (PCR product rehybridization)
1630	TEA & END OF DAY 2

Thursday 20 October 2022 – Day 3

TIME	PROGRAMME
0800-0900	BREAKFAST
0900	Practical 4 <ul style="list-style-type: none">○ Transfected cells visualization○ T7E1 endonuclease assay (Digestion)
1015-1030	SHORT BREAK
1030	Sponsored Talk : PLT Scientific Multiplex Western Blot Imaging and More with Azure Gel Imaging System
1130-1145	SHORT BREAK
1145	Practical 5 <ul style="list-style-type: none">○ T7E1 endonuclease assay (Result discussion)○ Azure Biosystem Demo (Western blot Imaging)
1300-1415	LUNCH BREAK
1415	Lecture 6: Characterization of edited cells and CRISPR-Cas9 case studies Networking and Discussion
1630	TEA & END OF WORKSHOP

