

Human Genome Engineering using CRISPR/Cas9

Genome Engineering Lab, University of Westminster

www.westmingenlab.com

Day 1: Tuesday 28th April 2020

9.00 - 9.45	Arrivals and registration
9.45-10.00	Welcome and introductions
10.00-11.00	Inaugural lecture Human Genome Engineering in human disease modelling current applications and limitations in future John J Murphy , Research Director, School of Life Sciences
11.00 -11.30	CRISPR <i>in vitro</i> studies: Working on new cancer driver gene? Case study: My journey with a new cancer breast driver gene and CRISPR/Cas9 genome engineering technology Nadeen Solaiman
11.30-12.00	Tea/Coffee Refreshment BREAK
12.00 -12.30	Agilent technologies - Advances in human Genome Engineering
12.30 -13.00	Stages in CRISPR genome editing an introduction, an overview of genomic engineering technologies the design of CRISPR-Cas9 reagents. Kalpana Surendranath
13.00 -14.00	Lunch BREAK
14.00 - 16.30	Guide RNA / Donor design workshop in computer lab - Introduction to guide design advantages and limitations. Simple guide cloning methods and successful transfection systems Kalpana Surendranath
16.30 – 17.00	Tea/Coffee Refreshment BREAK
17.00-19.00	<i>Genome Engineering Laboratory C5.02</i> Lab session:1 Work with cells to be transfected tomorrow, assessing cell count and viability () followed by plating cells for transfection
END of DAY1	

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Day 2: Wednesday 29th April 2020

9.30 - 10.00	CRISPR-Cas9 genome editing and the DNA damage response Kanagaraj Radhakrishnan (Francis Crick Institute)
10.00 – 10.30	ThermoFisher - Advances in human Genome Engineering
10.30 – 11.00	Tea/Coffee Refreshment BREAK
11.00 - 13.00	Lab session:2 <i>Genome Engineering Laboratory C5.02</i> Transfection of CRISPR components: Preparation of RNP complexes, Electroporation of RNPs and lipofection of CRISPR mcherry vectors
13.00 - 14.00	Lunch BREAK
14.00 - 14.30	Cas9 enzyme purification and applications
14.30 - 15.00	Advances in human Genome Engineering CRISPR Vector and Virus solutions, Matthew Wheeler , Associate Director Vector Builder GmbH
15.00 - 15.30	Tea/Coffee networking
15.30-18.00	Lab session:3 <i>Genome Engineering Laboratory C5.02</i> Setting up RNP transfection Verification of trial guide design and plan your first CRISPR editing experiment
END of DAY2	

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Day 3: Thursday 30th April 2020

9.30-12.00	
Lab session:4	<i>Genome Engineering Laboratory C5.02</i>
Examine mcherry positive cells via microscopy Knock-In cell validation – Genomic DNA Preparation, Genomic PCR gel analysis of insertions and deletions	
12.00 – 13.00	Lunch BREAK
13.00- 14. 00	
Advances in human Genome Engineering	Genome Editing: A New Era in Molecular Biology
Marc Davies , Account Manager, New England, Biolabs, UK	
14.00 – 14.30	Purification of Cas9 protein: applications
14.30-15.30	Verification of genome editing, bioinformatic tools and workflow
15.30 – 16.00	Summary of the workshop Guidance and Feedback
16.00 - 16.30	Closing remarks and acknowledgements