

Simon Lesbirel

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Experience

**The Jackson Laboratory, Bar Harbor, ME, & Farmington, CT, USA
Genomic Scientist, Genome Technologies.**

2020-Present.

Developing and deploying novel NGS/third generation technologies to benefit the commercial objective of the Jackson Laboratory and servicing the wider research community.

- Management of multiple external collaborations with companies such as New England Biolabs and Circulomics.
- Working throughout the research community at JAX Maine/Connecticut to demonstrate the power of long read based assays.
- Generating complete workflows from the bench to computational analysis. Focusing on targeted long read sequencing for validation of transgenic models.
- Understanding the limitation of current technology and the directions needed to improve.

**The Jackson Laboratory, Bar Harbor, ME, USA
Post-Doctoral Research Associate, Ke Lab. Bar Harbor, ME, USA.**

2018 – 2020.

Projects aim to understand the molecular mechanism behind m⁶A deposition and the downstream influence this has upon specific cellular functions. The long-term goal of this work is to apply a sound biochemical foundation to further understand the role of m⁶A with mESC differentiation and specific disease states.

- Design and planning of large-scale NGS and Mass spectrometry projects aiming to generate large data sets for *de novo* discovery.
- Manage multiple collaborations across a verity of projects.
- Present findings in a concise and accurate manner for presentations and manuscript preparations.
- Continuous exploration of new techniques and technology that can be of benefit to current or future projects.

**Secerna LLP. York, UK.
Technical Assistant (Trainee Patent Attorney)**

2017 - 2018.

Working closely with the Partners and qualified Attorneys I gained a deep insight into the world of intellectual property within the European Union and North America.

- Involved in client meetings ranging from initial consultation to patent portfolio management.
- Exceptional organisational and time management skills to ensure all client and patent office deadlines were met.

**KKi Associates. Technology Commercialisation Consulting, Sheffield, UK.
2014 - 2018.**

On/off work throughout PhD giving me an in-depth understanding of the steps required when commercialising scientific discoveries.

**Zilico Medical Diagnostics. Manchester, UK.
Professional placement.**

01.2016 - 03.2016: A three-month professional placement funded by the BBSRC. Zilico is a medical device company employing electrical impedance spectroscopy to identify pre and cancerous cervical tissue.

- Aiding in the co-ordination of venture capital investment rounds.
- Understanding of the sales strategies, where and when to implement best.
- Introduction to the regulatory landscape of medical device design and manufacture.

Research Skills

- **Managing** and developing multiple collaborative projects at the same time. Facilitating the rapid transfer of knowledge and fostering novel ideas.
- **Sequencing Technology.** Extensive experience in NGS and third generation sequencing platforms and downstream analysis tools.
- **Genomic** techniques such as design and practical application of the CRISPR cas9 and dCas9 systems within mammalian systems, including retro/lenti viral integration techniques. Chromatin immunoprecipitation qPCR and sequencing. Genotyping.
- **RNA biology** specific experience includes RNA and mRNP complex purification, library preparation for mRNA sequencing (long and short read platforms) and RNA immunoprecipitation including m⁶A-RNA immunoprecipitation. Generation of In Vitro Transcribed RNA with specific modifications for binding assays and Nanopore sequencing.
- **Protein biochemistry** techniques such as, co-immunoprecipitation and tagged protein purification (HIS/GST), mutagenesis, pulldown assays and S³⁵ –RETIC lysate pulldowns.
- **Fluorescence Microscopy** techniques comprise immunostaining and fluorescence *in situ* hybridization.
- **Tissue Culture.** Extensive experience in human and mESC tissue culture. Including construction of stable inducible cell lines (RNAi and FLAG/MYC), siRNA transfections and DNA transfections.
- Strong understanding and experience in core molecular biology techniques such as PCR, qPCR, Gibson/HiFi assembly, restriction cloning, Western blot, gel electrophoresis, DNA and RNA extraction.

Education

Doctor of Philosophy (PhD)

2013-2017: The University of Sheffield, Department of Molecular Biology and Biotechnology

PhD: Molecular Biology, White Rose Doctoral Training Partnership.

Project Title: Epitranscriptomic Regulation of Human mRNA Nuclear Export.

The project aimed to decipher the model of interaction between the human mRNA export machinery and the recently characterised mRNA methyltransferase (m⁶A) complex. Classical biochemical and genetic techniques were applied alongside next generation sequencing. The results of the project identified a novel m⁶A dependent nuclear export mechanism for a subset of mRNAs involved in cell cycle regulation, mRNA processing and the DNA damage response.

Undergraduate (BSc)

2010-2013: The University of Sheffield, Department of Molecular Biology and Biotechnology

Degree: Biochemistry and Microbiology, **First Class BSc.**

Publications

- Low E, Lesbirel, S, Wiles, M. Efficient targeted transgenesis of large donor DNAs in multiple mouse genetic backgrounds using bacteriophage Bxb1 integrase. ***In preparation***
- Lesbirel S, Charette J, Wei C. A faster workflow for the assessment of genomic loci in mice using a novel HMW DNA extraction technology upstream of Cas9 targeted sequencing. New England Biolabs, Technical note. 2020.
- Lesbirel S, Viphakone N, Parker M et al. The m⁶A-methylase complex recruits TREX and regulates mRNA export. *Scientific Reports*. 2018;8
- Lesbirel S, Wilson SA. The m⁶A-methylase complex and mRNA export. *Biochim Biophys Acta Gene Regul Mech*. 2018.