Donnelly Centre
PDF and RA Seminar Series

Exploring the frontiers of genomic medicine in congenital muscular dystrophy

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DATE: Monday May 28th, 2018
TIME: 12:00 – 1:00 pm
LOCATION: Red Room

Congenital muscular dystrophies (CMD) represent a rare, heterogeneous group of autosomal recessive disorders, manifesting as severe muscle wasting and poor motor movements, which present at birth or shortly thereafter. About 40% of CMD cases are classified as LAMA2-deficient and caused by mutations in the *LAMA2* gene encoding Laminin-α2 protein, which plays a crucial role in the structural stability of skeletal muscle and Schwann cells. Individuals with LAMA2-CMD present with significant hypotonia and weakness of mainly the lower extremities and never achieve independent ambulation. There are currently no treatments available for these patients and their life trajectory is severely limited.

My research focuses on development of mutation-dependent and -independent therapeutic approaches for LAMA2-CMD. I will present our studies in using CRISPR/Cas9 technology to (1) correct a splice-site mutation in *Lama2* (Kemaladewi *et al*, Nat Med, 2017) and (2) transcriptionally upregulate compensatory disease modifier gene *Lama1* (Kemaladewi*, Bassi*, *et* al, BioRxiv, 2018) in LAMA2-CMD mouse model. I will also discuss important considerations on moving these strategies towards clinical application.

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