MEDIZINISCHE UNIVERSITÄT WIEN

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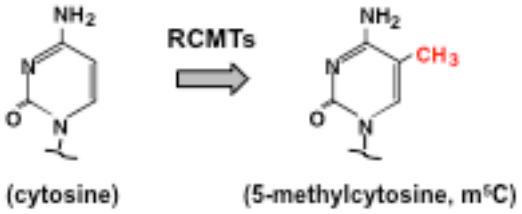
Master Student Position in RNA BIOLOGY @ Center for ANATOMY & CELL BIOLOGY

RNA molecules are chemically modified.

(Cytosine-5) RNA methylation (RNA m^5C) is one of about 130 distinct chemical RNA modifications (1).

Various RNA (cytosine-5) methyltransferases (**RCMTs**), which are highly conserved during evolution, are responsible for the addition of methyl groups on cytosine residues (2).



RCMT mutations revealed that RNA m^5C plays multiple roles in stress responses, translation and mobile element control (2).

However, little is known about the biological impact of individual m^5C marks in specific RNAs.

To address this question, we offer an exciting Master Thesis project entitled:

"Making (cytosine-5) RNA methylation programmable using RNA-targeting Cas9 (RCas9)"

The project is based on a recently developed approach using **nuclease-inactive S. pyogenes CRISPR/Cas9 that can bind RNA in a nucleic-acid-programmed manner allowing to manipulate endogenous RNAs in living cells.**

The focus of this project will be developing a system that allows introducing m^5C at specific positions (5'-UTR, 3'-UTR, splice junctions, coding sequence) of a reporter RNA in mammalian cell culture and testing the effects of single m^5C sites on RNA metabolism and translation.

The applicant needs basic molecular biology and tissue culture skills. The position will be paid with 440 €/month for the duration of one year. Starting date: 01/2018.

1. Roundtree, I. A. & He, C. RNA epigenetics--chemical messages for posttranscriptional gene regulation. *Curr Opin Chem Biol* **30,** 46–51 (2016).
2. Hussain, S., Aleksic, J., Blanco, S., Dietmann, S. & Frye, M. Characterizing 5-methylcytosine in the mammalian epitranscriptome. *Genome Biol.* **14,** 215 (2013).
3. Nelles, D. A. *et al.*, Programmable RNA Tracking in Live Cells with CRISPR/Cas9. *Cell.* **165**, 488–496 (2016).