

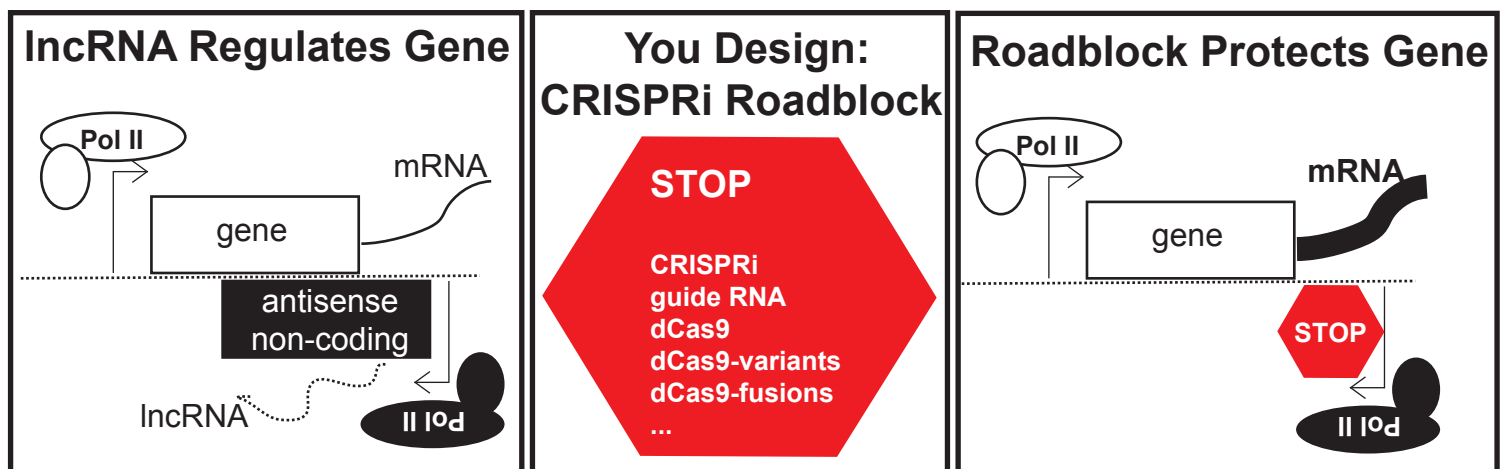
# WANTED: MOLECULAR DESIGNER

**Master thesis opportunity** at Marquardt lab:

“Designing Transcriptional Roadblocks to Elucidate the Non-Coding Genome”  
at Copenhagen Plant Science Centre (CPSC)

## Big Question:

DNA that does not code for proteins (non-coding DNA) makes up the vast majority of bases in many genomes yet we understand little about its role. Non-coding regions are actively transcribed by the same complex transcribing genes (RNA polymerase II, Pol II). Transcription of non-coding sequences results in the production of long non-coding RNA (lncRNA). lncRNA carry out functional roles but the collective roles of lncRNA regions remain to be elucidated. The magnitude of non-coding transcription and current debate concerning function illustrates that research addressing this topic focuses on a key question in current basic biology.



## Your Role:

We study examples in plants and yeast, where lncRNA transcription regulates nearby gene expression. We started to use CRISPR/Cas9 genome engineering methods to precisely modify lncRNA regions. We are offering a MSc thesis project opportunity to apply the CRISPR-interference (CRISPRi) technology to study functional lncRNA transcription. CRISPRi relies on catalytically inactive Cas9 protein (dCas9) that can remain stably associated with target DNA regions and act as a roadblock for transcription. Your projects will explore molecular design strategies to block Pol II lncRNA transcription efficiently at specific sites in whole organisms. This project fits perfectly to an enthusiastic student interested in assisting cutting-edge research of our team.

**Please contact Sebastian for further information**

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<http://cpsc.ku.dk/meet-the-scientists-page/sebastian-marquardts-group/>

