

# **Living with Two X Chromosomes: of Mice and Women**

**Studies on the initiation mechanisms of X chromosome  
inactivation in stem cells and mouse models, and the role of RNF12  
herein**

**Tahsin Stefan Barakat**

Cover shows a collection of pictures obtained from immunofluorescence and fluorescence *in situ* hybridization experiments performed throughout this thesis work.

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**Living with Two X Chromosomes: of Mice and Women**  
*Studies on the initiation mechanisms of X chromosome inactivation in stem cells and mouse models, and the role of RNF12 herein*

**Leven met twee X chromosomen: over muizen en vrouwen**  
*Onderzoek naar de initiatie mechanismen van X chromosoom- inactivatie in stamcellen en muismodellen, en de rol van RNF12 daarin*

## Thesis

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by

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*Für meine Mutter*





# Chapter 1

## *Part 1: Introduction on X chromosome inactivation*

Parts of this chapter have been published in

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"X chromosome inactivation and embryonic stem cells"  
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*Development* 139: 2085-2089