

University of Groningen

Establishment of single-cell readouts for the study of TORC1 signaling dynamics in budding yeast

Vuillemenot, Luc-Alban Pierre Eric

DOI:

[10.33612/diss.1085533225](https://doi.org/10.33612/diss.1085533225)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2024

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Vuillemenot, L.-A. P. E. (2024). *Establishment of single-cell readouts for the study of TORC1 signaling dynamics in budding yeast*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.1085533225>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

**Establishment of single-cell
readouts for the study of
TORC1 signaling dynamics
in budding yeast**

Luc-Alban Vuilleminot

The work published in this thesis was carried out in the research group Quantitative Single-cell Dynamics, part of the Molecular Systems Biology unit of the Groningen Biomolecular Science and Biotechnology Institute (GBB). The research was financially supported via a PhD scholarship from the faculty of Science and Engineering (RUG) within the theme Molecular Life and Health.

Cover: Luc-Alban Vuillemenot

Layout: ProefschriftMaken

Print: ProefschriftMaken



university of
 groningen

Establishment of single-cell readouts for the study of TORC1 signaling dynamics in budding yeast

PhD thesis

to obtain the degree of PhD at the
 University of Groningen
 on the authority of the
 Rector Magnificus Prof. J.M.A. Scherpen
 and in accordance with
 the decision by the College of Deans.

This thesis will be defended in public on
 Tuesday 24 September 2024 at 9.00 hours

by

Luc-Alban Pierre Eric Vuillemenot

born on 12 April 1995
 in Besançon, France

Supervisors

Prof. A. Miliás Argeitis

Prof. K. Thedieck

Assessment Committee

Prof. M. Heinemann

Prof. L.M. Veenhoff

Prof. B. André

To my wife Alexane
and daughter Lily

Contents

Chapter 1

Visualization of TORC1 activity in single living cells 9

Chapter 2

A ribosome biogenesis regulator integrates inputs from the TORC1 and PKA pathways 41

Chapter 3

Dissecting the contributions of TORC1 and PKA to the dynamic localization of Sfp1 during the cell cycle 91

Chapter 4

Development of readouts for yeast TORC1 based on mTORC1 substrates 147

Chapter 5

Conclusions and future perspectives 203

Addendum

Nederlandse samenvatting 221

Résumé français 225

Acknowledgements 229

