Potential novel targets: Protease-activated receptors in idiopathic pulmonary fibrosis
Lin, Cong

Citation for published version (APA):
POTENTIAL NOVEL TARGETS:
Protease-Activated Receptors In Idiopathic Pulmonary Fibrosis

Cong Lin
c.lin@amc.uva.nl

ON Tuesday
15th September
at 14:00 in the Agnietenkapel
Oudezijds Voorburgwal 231
Amsterdam

Followed by a reception
in the Agnietenkapel

Paranifmen:
Dita Prasetyanti
p.r.prasetyanti@amc.uva.nl
Siyi Feng
c5stella@hotmail.com
Potential novel targets:
Protease-Activated Receptors In
Idiopathic Pulmonary Fibrosis

Cong Lin
Potential novel targets: Protease-Activated Receptors In Idiopathic Pulmonary Fibrosis

The research described in this thesis was performed at the Center for Experimental and Molecular Medicine (CEMM) at the Academic Medical Center in Amsterdam, the Netherlands

Author Cong Lin
Cover design Vivi and Eelco Roos
Layout Eelco Roos
Print Ridderprint

The print of this thesis was financially supported by the Academic Medical Center, Amsterdam, the Netherlands.

Copyright © 2015, Cong Lin, Amsterdam the Netherlands. All rights reserved. No part of this thesis may be reproduced or transmitted in any form or by any means, without express written permission from the author.
Potential novel targets: Protease-Activated Receptors In Idiopathic Pulmonary Fibrosis
Promotiecommissie:

**Promotor:** Prof. Dr. T. van der Poll  Universiteit van Amsterdam

**Copromotores:**
- Dr. C. A. Spek  Universiteit van Amsterdam
- Dr. K. S. Borensztajn  Universiteit van Amsterdam

**Overige leden:**
- Dr. B. van den Blink  Erasmus Universiteit Rotterdam
- Prof. Dr. B. Crestani  Institut National de la Santé et de la Recherche Médicale
- Prof. Dr. J. C. M. Meijers  Universiteit van Amsterdam
- Prof. Dr. P. H. Reitsma  Universiteit Leiden
- Prof. Dr. P.J. Sterk  Universiteit van Amsterdam
- Prof. Dr. C.J.M. de Vries  Universiteit van Amsterdam

*Faculteit der Geneeskunde*
To my parents
## Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>General introduction and outline of the thesis</td>
<td>9</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Targeting protease activated receptor (PAR)-1 with P1pal-12 limits bleomycin-induced pulmonary fibrosis</td>
<td>31</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Pharmacological targeting of protease activated receptor-2 affords protection from bleomycin-induced pulmonary fibrosis</td>
<td>53</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Protease-activated Receptor (PAR)-2 Is Required For PAR-1 Signaling In Pulmonary Fibrosis</td>
<td>71</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Protease activated receptor-1 regulates macrophage-mediated pulmonary fibrosis</td>
<td>95</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>High endogenous activated protein C levels afford protection against bleomycin-induced pulmonary fibrosis</td>
<td>115</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>Summary</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td>Discussion</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Nederlandse samenvatting</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>Acknowledgements</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Portfolio</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>List of publication</td>
<td>147</td>
</tr>
</tbody>
</table>