University of Groningen

Biolubrication enhancement for tissues and biomaterials

Wan, Hongping

DOI:
[10.33612/diss.135598825](https://doi.org/10.33612/diss.135598825)

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:
2020

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

Citation for published version (APA):

Wan, H. (2020). *Biolubrication enhancement for tissues and biomaterials: Restoration of natural lubricant function by biopolymers*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.
<https://doi.org/10.33612/diss.135598825>

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.

Biolubrication enhancement for tissues and biomaterials

Restoration of natural lubricant function by
biopolymers

Hongping Wan

Biolubrication enhancement for tissues and biomaterials
Restoration of natural lubricant function by biopolymers

By Hongping Wan

University Medical Center Groningen, University of Groningen
Groningen, The Netherlands

This work was financially supported by the Chinese Scholarship Council

Copyright©2020 Hongping Wan
Cover designed by Xinghong Zhao
Printed by IPSKAMP Printing

university of
groningen

Biolubrication enhancement for tissues and biomaterials

Restoration of natural lubricant function by
biopolymers

PhD thesis

to obtain the degree of PhD at the
University of Groningen
on the authority of the
Rector Magnificus Prof. C. Wijmenga
and in accordance with
the decision by the College of Deans.

This thesis will be defended in public on

Tuesday 20 October 2020 at 9.00 hours

by

Hongping Wan

born on 9 November 1990
in Sichuan, China

Supervisors

Prof. I.S. Zuhorn
Prof. A. Herrmann

Co-supervisor

Dr. P. K. Sharma

Assessment Committee

Prof. M.M.G. Kamperman
Prof. E. van der Heide
Prof. F. Zhou

Contents

Chapter 1	General introduction	1
Chapter 2	Next generation salivary lubrication enhancer derived from recombinant supercharged polypeptides for xerostomia <i>ACS Applied Materials & Interfaces</i> , 2020 , 12,31, 34524–34535	11
Chapter 3	Enhancement in Xerostomia Patient Salivary Lubrication using a Mucoadhesive <i>Journal of dental research</i> , 2020 , 99, 914–921	47
Chapter 4	A bioinspired mucoadhesive restores lubrication of degraded cartilage through reestablishment of lamina splendens. <i>Journal of colloids and surfaces B:biointerfaces</i> . 2020 , 193, 110977	73
Chapter 5	Nanostructured coating for biomaterial lubrication through biomacromolecular recruitment <i>ACS Applied materials & Interfaces</i> , 2020 , 12, 21, 23726-23736	103
Chapter 6	General discussion	137
	Summary	147