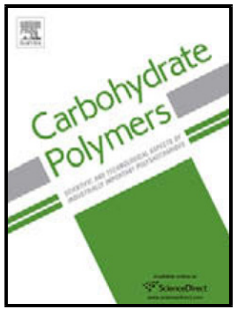

Title: Sulfation degree not origin of chondroitin sulfate derivatives modulates keratinocyte response

Authors: Luisana Corsuto, Sandra Rother, Linda Koehler, Emiliano Bedini, Stephanie Moeller, Matthias Schnabelrauch, Vera Hintze, Chiara Schiraldi, Dieter Scharnweber

PII: S0144-8617(18)30230-3
DOI: https://doi.org/10.1016/j.carbpol.2018.02.072
Reference: CARP 13334

To appear in:

Received date: 29-11-2017
Revised date: 25-1-2018
Accepted date: 22-2-2018

Please cite this article as: Corsuto, Luisana., Rother, Sandra., Koehler, Linda., Bedini, Emiliano., Moeller, Stephanie., Schnabelrauch, Matthias., Hintze, Vera., Schiraldi, Chiara., & Scharnweber, Dieter., Sulfation degree not origin of chondroitin sulfate derivatives modulates keratinocyte response.*Carbohydrate Polymers* https://doi.org/10.1016/j.carbpol.2018.02.072

Sulfation degree not origin of chondroitin sulfate derivatives modulates keratinocyte response

Authors: Luisana Corsuto[1*], Sandra Rother[2*], Linda Koehler[2], Emiliano Bedini[3], Stephanie Moeller[4], Matthias Schnabelrauch[4], Vera Hintze[2], Chiara Schiraldi[1*] , Dieter Scharnweber[2*]

[1]Department of Experimental Medicine, Section of Biotechnology, Second University of Naples, Italy

[2]Technische Universitaet Dresden, Institute of Material Science, Max Bergmann Center of Biomaterials, D-01069 Dresden, Germany

[3]Department of Chemical Sciences, University of Naples Federico II, Complesso Universitario Monte S. Angelo, via Cintia 4, I-80126 Napoli, Italy

[4]Biomaterials Department, INNOVENT e.V., Jena, Germany

*Contributed equally

Corresponding author

chiara.schiraldi@unicampania.it; dieter.scharnweber@tu-dresden.de

Graphical abstract

Highlights – 3 – 5 with maximum 85 characters, including spaces

- Chondroitin sulfate (CS) derivatives sulfation-dependently bind mediator proteins
- Semi-synthetic and extractive CS variants interact comparable with VEGF-A
- High-sulfated CS variants (sCS3) enhance the keratinocyte release of active TGF-β1
- The keratinocyte proliferation and migration is decelerated in the presence of sCS3
- sCS3-based biomaterials may rebalance hyperproliferative epidermis in chronic wounds

Abstract

Chondroitin sulfate (CS) sulfation-dependently binds transforming growth factor-β1 (TGF-β1) and chronic wounds often accompany with epidermal hyperproliferation due to downregulated TGF-β