

INSPIRATIONAL TEDx-TALK ABOUT THE VALUE OF HIBERNATION FOR HUMAN MEDICINE:

23 February 2015 – Groningen, the Netherlands

How Can Nature Help Solve the Major Health Issues of the 21st Century?

According to Prof. Dr. R.H. Henning of the University of Groningen, the Netherlands, nature has already solved many issues mankind still struggles with. He believes the answers to address them are out there, but we just have to look into it. During his inspiring TEDx-Talk, organised by TEDx-Groningen, Prof. Henning explained the natural phenomenon ‘Hibernation’ and its great value for human medicine. He is convinced that unravelling the secret of hibernation is the key to addressing major health problems worldwide.

In his just recently released [YouTube-video](#) of his talk on November 20th last year, Henning passionately explains the science of hibernation and its importance for medicine. “Five years of researching hibernation has led to the conclusion that understanding the chemistry of hibernation will make a significant contribution to the treatment of major health problems worldwide like COPD, Diabetes II, organ transplantation and cardiovascular diseases” Henning concludes.

Hibernators and Humans – what’s the connection?

In the TEDx-Talk Rob Henning goes back to his early days, when he worked as an anaesthesiologist. He became intrigued by the way a patient’s body responds to surgery and trauma. He saw an interesting connection with the processes that occur during hibernation. Same challenging circumstances, like cold and inactivity, but a totally opposite reaction of the body. Where humans cannot survive similar harsh circumstances without medical assistance, hibernating animals cope well and show no organ or brain damage after surviving the hard time.

Hibernation and Human Health – how to exploit hibernation for the benefit of human medicine?

Together with a team of researchers, Henning found out that all revolves around the key of hibernation: Suppression of the Metabolism. Finding the answer to how hibernators suppress their metabolism will help the development of drugs and therapies for these most deadly diseases of this century.

Compounds and Cooling – what’s the magic?

During his presentation Henning talks about the fact that his research shows that hibernators make specific compounds to protect their cells and tissue during hibernation and additional protective mechanisms are activated by cooling their body temperature. “It seems that this magical mix of specific compounds & cooling does the trick to protect their body against difficult circumstances like cold, starvation, immobility and overeating. The good news is that these compounds work in non-hibernators too, including human cells,” Henning says.

Chemical Compounds and Applications – what to expect for the future?

In cooperation with Prof. Rob Henning and his team, the Dutch company [Sulfateq BV](#) has successfully developed and synthesized effective chemical compounds that can enhance similar protective processes; the so-called ‘SUL-compounds’. Multiple studies in *in vitro* and *in vivo* models have shown promising results for human cells and tissues. Sulfateq is ready to further develop this potential by attracting investors in order to proceed with the different phases of drug development. The first two urgent medical needs they target are COPD and Diabetes II. Right now, it now all depends on

investment and funding before human medicine can start to benefit from all the hard work Prof. Henning and his team have done so far.

In the meantime, Prof. Dr. Rob Henning and his team will continue to research hibernation, its protective processes and the suppression of the metabolism. And who knows, maybe in 30 years humans can go into hibernation to survive major surgery or space travelling. Or just survive cold winters!

Link to video: <https://www.youtube.com/watch?v=mzEjupeQ2Q>

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Sulfateq BV is an innovative biotechnology research company, located in the north of the Netherlands. It was founded in April, 2011 by Drs Kees van der Graaf, an industrial pharmacist and successful entrepreneur in biotech start-ups. The company's core business is to exploit a revolutionary, disruptive technology, based on the identification of compounds identified in the research of the natural mechanism in hibernation, by studying mammals in their hibernation state.

The technical applications of Sulfateq's compounds is based on this natural mechanism of hibernation, but the intellectual property of the mechanisms enhanced by Sulfateq's compounds is well protected by patents. This revolutionary technology focuses on following applications:

Sulfateq's serie of compounds have applications in:

- hypothermic cell-, tissue- and organ preservation
- cell- and tissue growth regulation
- control of inflammatory response

Sulfateq has close working relations with the University of Groningen and a worldwide network of research collaborations including a CRADA with the US Army Institute of Surgical Research.