Collaborative project between the SBBRP and Örebro University Hospital on blood clot formation.

Örebro University Hospital and University of Aalborg, Denmark, have initiated collaboration with the Scandinavian Brown Bear Research Project. Seen from a physiological perspective the brown bear is unique. The brown bear spends 6-7 months in winter den and during this time it barely exhibits any physical activity. The bear does not form blood clots; it doesn't develop bedsores or osteoporosis and it hardly loses any skeletal mass while in the den. Humans subjected to the same physical stress would develop blood clots, bedsores, osteoporosis, and lose at least 90% of the muscle mass. What also makes the bear interesting compared to other hibernating animals is that the bear's body temperature only decreases to 34 ºC. This means that findings from the bear can be more readily translated to human physiology.

The purpose of this collaboration is to look into the possibility of using the Scandinavian brown bear as an inspirational biological model for how to protect patients suffering from various diseases, primarily patients suffering from cardiovascular disease. During April 2009 we completed the first part of the project. We studied blood platelet function in bears and compared this with findings in humans. We have also cultivated stem cells from the bear – focusing on stem cell function of importance for blood clot formation and cardiovascular function. The results are very promising and we expect to publish them scientifically during 2009-2010. Our findings will lay the foundation for future and more detailed studies.

Hopefully, this type of research will increase our knowledge in understanding the causes and possible cures for patients suffering from coronary heart disease. In heart disease it is of great importance to reduce the activity of blood platelets as well as to activate stem cells after a heart attack. These initial results indicate that the Scandinavian brown bear has already solved several of the problems that still challenge the care of heart patients.

Ole Fröbert, MD, ph.d., Örebro University Hospital.

Figure. Three veterinarians and one research assistant collecting blood samples from one of the bears.