## **ACKNOWLEDGEMENTS**

First of all, I would like to thank my mother, who made my education possible. I want to thank her for her support and patience.

Then, I want to warmly thank my fantastic supervisor Prof. Dr. Michael Bader for his leadership, his valuable help in scientific problems and daily questions. I am grateful for his discussions of my results, for his criticism as well as encouragement and for giving me intellectual liberty.

I would like to express my particular thanks to Prof. Dr. Rupert Mutzel for taking over the mentorship of this thesis.

I gratefully acknowledge the skillful technical assistance of Aldehied Böttger, Andrea Müller and Tanja Schalow. As well, I would like to thank to Dr. Elena Popova for her persistence and patience in generating shRNA transgenic rats using pronuclear microinjection. I deeply appreciate Dr. Mihail Todiras for his 24-hours help in establishing the rat model of type II diabetes. Of course, I am very grateful to all the people who somehow helped me scientifically during my four years being here, especially Dr. Natalia Alenina for guiding me through DNA cloning strategies and BAC recombineering technology; Dr. Marcelo A. Mori for his great suggestions and advices in the field of diabetes research; Dr. Jost Seibler from TaconicArtemis GmbH in Cologne for the very fruitful collaboration in this project; all technical assistants from our animal house for a fantastic cooperation and all the members of our group for contributing a nice working atmosphere in the lab and great memories from our scientific meetings and group tours.

I am happy to have a wonderful family in my country, especially my sister Mojca, and very good friends who were always there for me.

Last but least, I would like to thank to Andrei for his encouragement and understanding that my work makes me young.