

ACKNOWLEDGEMENTS

First of all, prayerful thanks to **ALLAH** the merciful God who gives me everything I have.

I would like to express my deep gratitude to my supervisor **PD. Dr. Falko Steinbach**, for his continuous support during the work. Dr. Steinbach always listened and provided kind advice. He taught me how to ask questions and express my ideas. He showed me different ways to approach a research problem and the need to be persistent to accomplish my goals.

Special deep and grateful thanks to my husband **Sherif Ibrahim** for his love and care for our daughters and me. Sherif has been a colleague as well as a friend and mentor. He had confidence in me when I doubted myself. Without his support, encouragement, helpful advices and constant guidance, I would not have succeeded.

Of course, I would like to express my gratitude to **Dr. Farah** and **his wife** who gave me the possibility to start this work.

I would particularly like to express my gratitude to **Dr. Steffanie Speck** for her continuous aid. Besides it gives me a great pleasure to express my thanks to the **Evolution genetics workgroup** and **all IZW** staff members, who supported my work.

All grateful thanks to **Prof. Dr. Grabner** and **staff members of equine clinic**, Faculty of Veterinary Medicine, Free University, Berlin. A particular thanks to the **horses** at horse clinic and those **animals** in the TierPark-Berlin for their blood donation.

I am deeply indebted to **my thoughtful father and mother as well as each member of my beloved family** whose continuous support and encouragement paved my way in life and helped me all the time. I take this opportunity to express the profound gratitude from my deepest heart to my **parents, siblings, my daughters Arwa and Aya, grandparents, my mother-in-law** and **friends** for their sincere prays, love, patience and spiritual support