

**Contents**

1. ABSTRACT ..... 4

2. INTRODUCTION..... 6

    2.1. Skeletal muscle and metabolism ..... 6

    2.2. mTORC1 signaling ..... 8

    2.3. Endoplasmic reticulum stress..... 11

    2.4. Fibroblast Growth Factor 21 ..... 13

3. RESULTS ..... 20

    3.1. Manuscript 1..... 20

    3.2. Manuscript 2..... 86

    3.3. Creation and characterization of a new mouse model ..... 132

4. CONCLUDING REMARKS..... 155

5. REFERENCES..... 163

6. APPENDIX..... 183

    6.1. Publication 3 ..... 183

    6.2. Publication 4 ..... 197

7. ACKNOWLEDGEMENTS ..... 213

8. CURRICULUM VITAE..... 215