Table of Contents

List of Figures and Tables I-II
Abbreviations III-IV
Abstract V-X

Chapter 1
Introduction 1-5

Chapter 2
Materials and Methods 6-13
2.1 Fly culture 6
2.2 Drug dosage and treatment 6
2.3 Climbing assay 7
2.4 Microarray expression profiling 8
2.5 Statistics and bioinformatics 10
2.6 Real time quantitative PCR 12

Chapter 3
Results and Discussion 14-23
3.1 Development of PTZ withdrawal induced climbing speed 14
   increase is ameliorated by AEDs
3.2 Transcriptomic alterations underlying post-PTZ withdrawal 15
   regime resemble that known in post-epileptogenesis
3.3 PTZ withdrawal induced upregulation of genes enriched in transcription regulatory activity and G-protein regulatory activity is specifically neutralized by AEDs

3.4 Systems level analyses implicate neuronal plasticity and axonal guidance pathway in the fly model

3.5 AEDs downregulate genes enriched in transcription regulatory activity and G-protein regulatory activity in normal flies

Figures and Tables 24-53

Conclusion 55

References 56-63