

LIST OF ILLUSTRATIONS

<i>Number</i>	<i>Page</i>
1.1 The Hippocampus and Long-Term Potentiation	4
1.2 Input-Specific Synaptic Plasticity	8
1.3 Dopamine D1/D5 Receptor Signaling	10
2.1 BDNF Stimulates Protein Synthesis in Hippocampal Neurons	33
2.2 Time-Lapse Imaging of BDNF-Stimulated Translation.....	35
2.3 Untreated Transected Dendrites Show Little Protein Synthesis	37
2.4 BDNF-Stimulated Translation in Transected Dendrites	38
2.5 Anisomycin Block of Translation in Transected Dendrites	39
2.6 Limited Diffusion of Membrane-Anchored GFP Reporter.....	43
2.7 BDNF-Stimulated Translation in Optically Isolated Dendrites	44
2.8 Anisomycin Block of Translation in Optically Isolated Dendrites	45
2.9 Temporal/Spatial Stability of GFP Signal	46
2.10 GFP Reporter Colocalize with Ribosomes and Synaptic Markers	49
3.1 Dopamine D1/D5 Receptor Agonist Stimulates Protein Synthesis	62
3.2 F2P Reporter of Endogenous Local Protein Synthesis.....	64
3.3 Synthesis-Dependent Increase of GluR1 via D1/D5 Agonists.....	67
3.4 Synthesis-Dependent Increase of mEPSC Frequency	69
4.1 3-D Particles Analysis Program Screenshots.....	88
4.2 2-D Correlation: Autocorrelation of a Test Image.....	91
4.3 2-D Correlation: Highly Correlated Test Images	92
4.4 2-D Correlation: Uncorrelated Test Images.....	93
4.5 2-D Correlation: Membrane-Anchored GFP / PSD-95	95
4.6 Sample Randomized GFP / PSD-95 Images.....	96