

Table of Contents

List of Tables	ix
List of Figures	x
Section 1 - Introduction	1
Important Roles of p53 and MDM2 in Cancer	1
Structure and Function Domains of p53	2
p53 Target Genes and the Functions of Their Encoded Proteins	7
p21 ^{WAF1/CIP1}	7
14-3-3 σ	8
GADD45a	10
rrm2b-p53R2	12
Transcription Dependent Regulation of Apoptosis by p53	14
Transcription Independent Regulation of Apoptosis by p53	18
MDM2(HDM2)	21
Regulators of the MDM2-p53 Feedback Loop	24
ARF	24
ATM/ATR	25
MDMX	26
HAUSP	27
Table 1	29
Nucleolar Stress and the Stabilization and Activation of p53	30
Figures 1.1-1.3	35
Section 2 - Materials & Methods	37
Figures 2.1-2.10	49
Section 3 - Results	55
Figures 3.1-3.6	58
Section 4 - Discussion	61
Figure 4.1	66
References	67
Curriculum Vitae	

List of Tables

Table 1.1 – Regulators of the MDM2-p53 Feedback Loop
--

29

List of Figures

Figure 1.1 – p53 Functional Domains	35
Figure 1.2 – p53 Nuclear Localization & Export Signals	35
Figure 1.3 – MDM2 Functional Domains with RPL5, RPL11, & RPL23	36
Figure 2.1 – Amplified RPL5 Inserts & pGEX4T-1-RPL5 Restriction Digest	49
Figure 2.2 – PCR Amplified RPL5-aa1-50 Insert	49
Figure 2.3 – Restriction Digest of RPL5 Deletion Mutant Inserts	50
Figure 2.4 – Restriction Digest Quantitative Gel of RPL5-aa1-50	50
Figure 2.5 – GEL-022708-1 SDS PAGE GST-RPL5-aa1-251	51
Figure 2.6 – GEL-022708-1 SDS PAGE GST-RPL5-aa39-251	51
Figure 2.7 – GEL-022708-2 SDS PAGE GST-RPL5-aa112-297	52
Figure 2.8 – GEL-081908-1 Quantitative for GST-RPL5-aa1-50	52
Figure 2.9 – GEL-091008-1 CS & GEL-091008-2 WB	53
Figure 2.10 – RPL5 Quantification Based on Band Intensity VS μ g of BSA	54
Figure 3.1 – MDM2 Titration against GSH, GST-0, & GST-RPL5-WT	58
Figure 3.2 – GST-RPL5 Deletion Mutant Binding to MDM2	58
Figure 3.3 – Coomassie Stain of GST-RPL5 Fusion Proteins	59
Figure 3.4 – Western of MDM2 with GST-RPL5 Deletion Mutants	59
Figure 3.5 – MDM2 Functional Domains with Proposed RPL5 Regions	60
Figure 3.6 – RBI Summary Chart RPL5-WT Normalized to 1.00	60
Figure 4.1 – RPL5 with MDM2 Binding Regions	66