

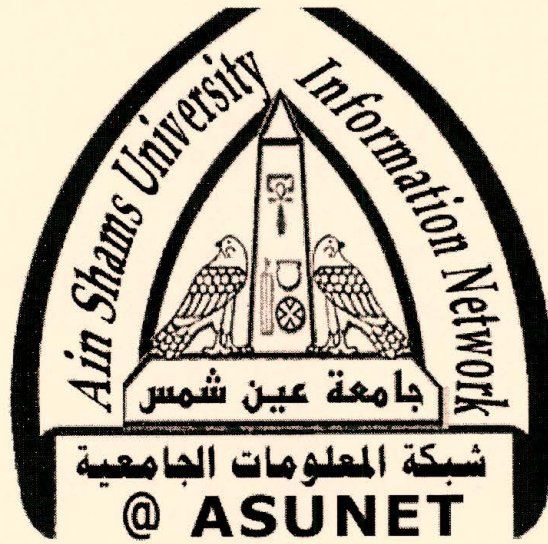


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التوثيق الالكتروني والميكروفيلم

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# ***GENOTYPE AND PHENOTYPE MAPPING STUDY OF OBESITY IN ALBINO MICE.***

A Thesis Submitted by

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For the Fulfillment of  
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To

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-2010-

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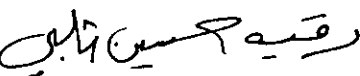
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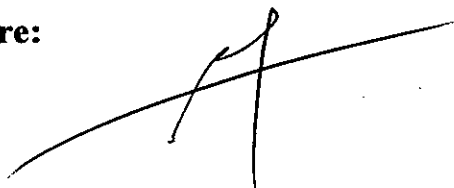
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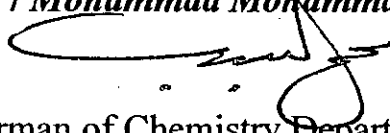
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## **ABSTRACT**

**Name:** *Nashwa Mohammad Shams Eldin Ali Ali Abd Elaal*

**Title of Thesis:** *Genotype and phenotype mapping study of obesity in albino mice.*

**Degree:** *M.Sc. of Science in Biochemistry, Chemistry Department Faculty of Science, Cairo University, 2010.*

Our knowledge of the genetic factors affecting obesity is increasing, but information about the individual gene effects remains limited in humans as well as in animal models. The aim of this study is to investigate the effects of high-caloric diets on the level of gene mutation and aberration and protein expression. Attempts to define the genetic basis of obesity (genotype and phenotype). Finally, to determine common DNA variation associated with obesity as a genetic marker. **Results:** there was highly significant ( $P < 0.05$ ) of cytogenetic aberrations in obese groups in comparison to control group. Also, there was differentiation in *ob* gene in all obese groups versus to control group. Finally, there were differences in protein expression by up- and down-regulation in obese groups in comparison to control group. **Conclusion:** from this study, we can conclude that high-caloric diet - which is one of the environmental factors - has a profound effect on the genetic and protein expression leading to obesity. Also, high-sucrose diet has the lower effect on the genetic and protein expression than the other both diets, while the combined diet (high fat-sucrose diet) has the stronger effect than the other both diets. As a result of high-caloric diet, there were high chromosomal aberrations, there was a differentiation occurred in the *ob* gene and there were difference in protein expression (up- and down-regulation) that was detected in obese groups in comparison to control group. The effect of high-caloric diet was reflected in the serum of obesity groups by measuring the biochemical parameters (total cholesterol, triglycerides and glucose) which indicated elevation than normal levels in comparison to control group.

**Key Words:** Obesity, Chromosome, Aberration, RFLP, Protein expression, High-caloric diet, *ob* gene, Albino mice.

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## *To My Family*

*I dedicate this thesis to my beloved family, words stand short when coming to express my deepest thanks, especial appreciation and gratitude to the soul of my father, for his moral support, cherish and blessing me, to my beloved mother for her had been learning the interesting of the science and encouraged me through this study, my brothers and my sister. Also many thanks for my beloved husband for his concern, cherish and patience, my daughter Salma for enriching my life.*

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*Nashwa M. Shams Eldin*



# *"Contents"*

	<u>Page</u>
<u>List of Tables.</u> -----	II
<u>List of Figures.</u> -----	VI
<u>List of Abbreviation.</u> -----	VIII
<u>CHAPTER I: INTRODUCTION &amp; AIM OF THE WORK.</u> -----	1
<u>CHAPTER II: REVIEW OF LITERATURE.</u> -----	5
<u>CHAPTER III: MATERIALS &amp; METHODS:</u> -----	28
<u>CHAPTER IV: RESULTS.</u> -----	51
<u>CHAPTER V: DISCUSSION.</u> -----	138
<u>CHAPTER VI: ENGLISH SUMMARY &amp; CONCLUSION.</u> -----	153
<u>CHAPTER VII: APPENDIX.</u> -----	157
<u>CHAPTER VIII: REFERENCES.</u> -----	159
<u>CHAPTER IX: ARABIC SUMMARY.</u>	

## **"List of Tables"**

### **Page**

- **Table (1):** Structural Chromosomal Aberration of High Fat Diet (HFD)-----58  
Group.
- **Table (2):** Numerical Chromosomal Aberration of High Fat Diet (HFD)-----59  
Group.
- **Table (3):** Structural Chromosomal Aberration of High Sucrose Diet-----67  
(HSD) Group.
- **Table (4):** Numerical Chromosomal Aberration of High Sucrose Diet-----68  
(HSD) Group.
- **Table (5):** Structural Chromosomal Aberration of High Fat-Sucrose Diet----76  
(HF-SD) Group.
- **Table (6):** Numerical Chromosomal Aberration of High Fat-Sucrose Diet---77  
(HF-SD) Group.
- **Table (7):** Comparison between Structural Chromosomal Aberration of----- 80  
HFD and HSD Groups.
- **Table (8):** Comparison between Numerical Chromosomal Aberration of---- 81  
HFD and HSD Groups.
- **Table (9):** Comparison between Structural Chromosomal Aberration of----- 83  
HFD and HF-SD Groups.
- **Table (10):** Comparison between Numerical Chromosomal Aberration----- 84  
of HFD and HF-SD Groups.
- **Table (11):** Comparison between Structural Chromosomal Aberration----- 86  
of HSD and HF-SD Groups.
- **Table (12):** Comparison between Numerical Chromosomal Aberration----- 87  
of HSD and HF-SD Groups.
- **Table (13):** Data analysis for HFD group Using RFLP (*Hae III*).----- 94

	<u>Page</u>
• <b>Table (14):</b> Data analysis for HSD Group Using RFLP ( <i>Hae III</i> ).-----	95
• <b>Table (15):</b> Data analysis for HF-SD Group Using RFLP ( <i>Hae III</i> ).-----	96
• <b>Table (16):</b> Data analysis for HFD Group Using RFLP ( <i>Pst I</i> ).-----	97
• <b>Table (17):</b> Data analysis for HSD Group Using RFLP ( <i>Pst I</i> ).-----	98
• <b>Table (18):</b> Data analysis for HF-SD Group Using RFLP ( <i>Pst I</i> ).-----	99
• <b>Table (19):</b> The Common Bands between HFD and HSD Groups----- using RFLP.	100
• <b>Table (20):</b> The Characteristic Bands in HFD Group and Not Found in----- HSD group using RFLP.	100
• <b>Table (21):</b> The Common Bands between HFD and HF-SD Groups----- using RFLP.	101
• <b>Table (22):</b> The Characteristic Bands in HF-SD Group Not Found in----- HFD group using RFLP.	101
• <b>Table (23):</b> The Common Bands between HSD and HF-SD Groups----- using RFLP.	102
• <b>Table (24):</b> The Characteristic Bands in HF-SD Group Not Found in----- HSD group using RFLP.	102
• <b>Table (25):</b> The Similarity Index and Genetic Distance for Control----- and Obesity Groups Using RFLP.	103
• <b>Table (26):</b> Data Analysis for SDS-PAGE in Control Group.-----	108
• <b>Table (27):</b> Data Analysis for SDS-PAGE in HFD Group.-----	109
• <b>Table (28):</b> Data Analysis for SDS-PAGE in HSD Group.-----	110
• <b>Table (29):</b> Data Analysis for SDS-PAGE in HF-SD Group.-----	111
• <b>Table (30):</b> The Common Bands in Control Group (Using SDS-PAGE).----	112
• <b>Table (31):</b> The Common Bands in HFD Group (Using SDS-PAGE).-----	112
• <b>Table (32):</b> The Common Bands in HSD Group (Using SDS-PAGE).-----	113



	<u>Page</u>
• <b>Table (33):</b> The Common Bands in HF-SD Group (Using SDS-PAGE).----	113
• <b>Table (34):</b> The Common Bands between Control and HFD Groups----- (Using SDS-PAGE).	116
• <b>Table (35):</b> The Characteristic Bands in HFD Group (Using SDS-PAGE).--	117
• <b>Table (36):</b> The Down-regulated Bands in HFD Group (Using SDS-PAGE)	117
• <b>Table (37):</b> The Common Bands between Control and HSD Groups----- (using SDS-PAGE).	119
• <b>Table (38):</b> The Characteristic Bands in HSD Group (Using SDS-PAGE).--	119
• <b>Table (39):</b> The Down-regulated Bands in HSD Group (Using SDS-PAGE)	120
• <b>Table (40):</b> The Identical Band in HSD and Control Groups----- (Using SDS-PAGE).	120
• <b>Table (41):</b> The Common Bands between Control and HF-SD Groups----- (Using SDS-PAGE).	122
• <b>Table (42):</b> The Characteristic Bands in HF-SD Group (Using SDS-PAGE).	122
• <b>Table (43):</b> The Disappeared Bands in HF-SD group (Using SDS-PAGE).--	123
• <b>Table (44):</b> The Identical Bands in HF-SD and Control Groups----- (using SDS-PAGE).	123
• <b>Table (45):</b> The Common Bands between HFD and HSD Groups----- (using SDS-PAGE).	125
• <b>Table (46):</b> The Characteristic Bands in HFD (Using SDS-PAGE).-----	126
• <b>Table (47):</b> The Characteristic Bands in HSD Group (Using SDS-PAGE).--	126
• <b>Table (48):</b> The Common Bands between HFD and HF-SD Groups----- (using SDS-PAGE).	128
• <b>Table (49):</b> The Characteristic Bands in HFD Group (Using SDS-PAGE).--	128
• <b>Table (50):</b> The Characteristic Bands in HF-SD Group (Using SDS-PAGE).	129