

CONTENTS

Introduction	1
1. Drug delivery nanosystems as a promising area of modern chemistry and medicine. Silica nanoparticles as potential drug carriers.	3
2. Syntheses of mesoporous silica materials.	8
2.1 Syntheses of unmodified silica materials	8
2.2 Synthesis of modified silica materials	10
3. Characterization of silica materials as potential carriers for GMDP.	12
3.1 Characterization of silica materials via FTIR spectroscopy	12
3.2 Characterization of silica materials via nitrogen adsorption–desorption measurements	14
3.3 Particle size of silica materials	19
3.4 Characterization of silica materials via small angle x-ray scattering (SAXS)	21
3.5 Adsorption properties of silica materials	21
3.6 DSC study of composites of model protein with silica materials	26
3.7 Calorimetric study of adsorption of model protein on silica materials	29
3.8 Preparation of silica nanoparticle suspensions	33
4. Interaction of silica nanoparticles with immune system cells.	35
4.1 Intensity of different silica nanoparticles uptake by immune cells	35
4.2 Influence of silica nanoparticles on parameters of functional activity of peritoneal macrophages	41
5. Peritoneal macrophages of women with endometriosis as a possible target for immunomodulatory drugs.	44
5.1 Impairment of peritoneal macrophage function at endometriosis	44
5.2 Influence of glucosaminyl muramyl dipeptide upon functional activity of peritoneal macrophages of women with endometriosis	48

CONTENTS

6. Effectiveness of different types of silica nanoparticles as drug carriers for topical delivery of GMDP into peritoneal macrophages of women with endometriosis.	51
6.1 Immobilization of GMDP on silica nanoparticles	51
6.2 Comparative study of the effects of free GMDP and GMD immobilized on silica nanoparticles on the functional state of peritoneal macrophages	52
References	59