

# **Controlled Delivery of Ondansetron from Lipid Carriers**

A thesis submitted by

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Mai Mansour Soliman  
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## ***Dedication***

***I dedicate this thesis to my soul mates, my beloved daughters, Marium & Salma.***

بسم الله الرحمن الرحيم

"وأنزل الله عليك الكتاب والحكمة وعلمك ما لم  
تكن تعلم وكان فضل الله عليك عظيما"

صدق الله العظيم  
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## **List of Abbreviations**

<b>5HT<sub>3</sub></b>	5-hydroxytryptamine
<b>2FI</b>	2 factor interaction
<b>AFM</b>	Atomic force microscopy
<b>ANOVA</b>	Analysis of variance
<b>AUC</b>	Area under the curve
<b>AUMC</b>	Area under the moment curve
<b>CPP</b>	Critical packing parameter
<b>D</b>	Dextran
<b>DGMO</b>	Diglycerolmonooleate
<b>DLS</b>	Dynamic light scattering
<b>DPPC</b>	Dipalmitoylphosphatidylcholine
<b>DPPG</b>	Dipalmitoylphosphatidylglycerol
<b>DSC</b>	Differential scanning calorimetry
<b>EE%</b>	Entrapment efficiency %
<b>F</b>	Freez-dried
<b>GML</b>	Glycerolmonolinoleate
<b>GMO</b>	Glycerolmonooleate
<b>HLB</b>	Hydrophilic-lipophilic balance
<b>HR-TEM</b>	High resolution transmission electron microscope
<b>IM</b>	Intramuscular
<b>IPMs</b>	Infinite periodic minimal surfaces
<b>IS</b>	Internal standard
<b>IV</b>	Intravenous
<b>L</b>	Leucine
<b>LC-MS</b>	Liquid chromatography-mass spectroscopy
<b>LD</b>	Leucine/Dextran mixture
<b>LDC</b>	Lipid drug conjugate
<b>LLC</b>	Lyotropic liquid crystals
<b>MO</b>	Monoolein
<b>MRT</b>	Mean residence time
<b>NA</b>	Not applicable
<b>NLC</b>	Nanostructured lipid carriers
<b>nm</b>	Nanometer
<b>Ond</b>	Ondansetron
<b>P188</b>	Poloxamer 188
<b>P407</b>	Poloxamer 407
<b>PB</b>	Phosphate buffer
<b>PBS</b>	Phosphate buffer saline
<b>PCs</b>	Phosphatidylcholines

<b>PDI</b>	Polydispersity index
<b>PEG</b>	Polyethylene glycol
<b>PEO</b>	Polyethylene oxide
<b>PGs</b>	Polyglycerols
<b>PLA</b>	Polylactic acid
<b>PLGA</b>	Poly lactoglycolic acid
<b>PONV</b>	Post operative nausea and vomiting
<b>PPO</b>	Polypropylene oxide
<b>PT</b>	Phytantriol
<b>RSM</b>	Response surface methodology
<b>RT</b>	Reconstitution time
<b>S</b>	Spray-dried
<b>SAXS</b>	Small angle x-ray scattering
<b>SD</b>	Standard deviation
<b>SE</b>	Standard error
<b>SEDDS</b>	Self emulsifying drug delivery system
<b>SEM</b>	Scanning electron microscopy
<b>SLN</b>	Solid lipid nanoparticles
<b>SMEDDS</b>	Self microemulsifying drug delivery system
<b>T<sub>1/2</sub></b>	Half life
<b>TEM</b>	Transmission electron microscopy
<b>TGA</b>	Thermogravimetric analysis
<b>VA</b>	Visual assessment
<b>XRPD</b>	X-ray powder diffraction
<b>Y%</b>	Yield %
<b>ZP</b>	Zeta potential
<b>µm</b>	Micrometer

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