

# Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
	References .....	4
 <b>Part I Chemistry and Structure of Dendrimers</b>		
<b>2</b>	<b>Definition of Terms and Nomenclature .....</b>	<b>9</b>
2.1	Dendriplexes and Dendrisomes .....	11
2.2	Dendrigraft .....	12
2.3	Glycotope .....	12
2.4	Glycocluster .....	13
2.5	Glycocluster–Cluster .....	13
2.6	Cluster Effect and Multivalency .....	13
2.7	Macromolecular Effect .....	14
2.8	Sugar Ball .....	15
2.9	“Smart” Glycodendrimers .....	15
	References .....	15
<b>3</b>	<b>Sugar Code (Glycocode) .....</b>	<b>23</b>
	References .....	25
<b>4</b>	<b>Classes of Peptide-, Glyco-, and Glycopeptide Dendrimers .....</b>	<b>29</b>
	References .....	34
<b>5</b>	<b>The Dendritic State and Dendritic Effects .....</b>	<b>45</b>
	References .....	51
<b>6</b>	<b>Synthesis of Dendrimers: Convergent and Divergent Approaches .....</b>	<b>55</b>
6.1	Divergent .....	57
6.2	Convergent .....	58
6.3	Lego Chemistry .....	58
6.4	Ligations .....	60
6.5	Click Chemistry .....	64
	References .....	70

<b>7</b>	<b>Purification and Characterization of Dendrimers</b>	83
7.1	Chromatographic Methods	84
7.2	Electromigration Methods	85
7.3	Mass Spectrometry	87
7.4	Miscellaneous Selected Examples	88
	References	89
<b>8</b>	<b>Dendrimeric Libraries</b>	93
	References	96
<b>9</b>	<b>Dendrimers in Catalysis</b>	99
	References	101
 <b>Part II Dendrimers and Their Biological and Therapeutic Applications</b>		
<b>10</b>	<b>Dendrimers and Solubility</b>	105
	References	108
<b>11</b>	<b>Biocompatibility and Toxicity of Dendrimers</b>	111
	References	112
<b>12</b>	<b>Dendrimers in Nanoscience and Nanotechnology</b>	115
	References	125
<b>13</b>	<b>Dendrimers in Drug Delivery</b>	131
	References	137
<b>14</b>	<b>Dendrimers in Gene Delivery</b>	141
	References	146
<b>15</b>	<b>Dendrimers and Bacteria</b>	149
15.1	<i>Escherichia coli</i>	149
15.2	<i>Vibrio cholerae</i>	152
15.3	<i>Pseudomonas aeruginosa</i>	153
15.4	<i>Haemophilus influenzae</i>	154
15.5	<i>Mycobacterium tuberculosis</i>	155
	References	156
<b>16</b>	<b>Dendrimers and Viruses</b>	161
16.1	Influenza	161
16.2	HIV	162
16.3	Other Viruses	164
	References	166
<b>17</b>	<b>Dendrimers and Parasites</b>	171
	References	172

<b>18</b>	<b>Cancer</b> .....	175
18.1	Adjuvant Effects on Dendritic Cells .....	176
18.2	Direct Effects on Tumor Cells .....	177
	References .....	181
<b>19</b>	<b>Diagnostics, Lectin Detection and Cell–Cell Interactions</b> .....	183
	References .....	188
<b>20</b>	<b>Dendrimers as Biosensors and Imaging Tools</b> .....	191
	References .....	194
<b>21</b>	<b>Dendrimers Regulating Intracellular Signaling Pathways</b> .....	197
	References .....	198
<b>22</b>	<b>Vaccines and Immunomodulation</b> .....	199
22.1	Antitumor Vaccines .....	201
22.2	Antiviral Vaccines .....	203
	References .....	204
<b>23</b>	<b>Dendrimers in Neurodegenerative Diseases</b> .....	209
23.1	Dendrimers as Anti-prion Agents .....	209
23.2	Dendrimers and Alzheimer’s Disease .....	213
23.3	Dendrimers and Parkinson’s disease .....	216
23.4	Miscellaneous Applications of Dendrimers in Neurodegenerative Disorders .....	217
	References .....	218
<b>24</b>	<b>Conclusions and Perspectives</b> .....	223
	<b>Index</b> .....	225

Biomedical Applications of Peptide-, Glyco- and  
Glycopeptide Dendrimers, and Analogous Dendrimeric  
Structures

Šebestík, J.; Reinis, M.; Ježek, J.

2012, XVIII, 238 p., Hardcover

ISBN: 978-3-7091-1205-2