Top 200 Drugs by Worldwide Sales 2013

Fabian Weber[a] and Gottfried Sedelmeier*,[b]

[a] Dipl.-Chem. Fabian Weber, Institut für Organische Chemie, Albert-Ludwigs-Universität Freiburg, Albertstraße 21, 79104 Freiburg, Germany, e-mail: mail@fabian-weber.eu; [b] Prof. Dr. Gottfried Sedelmeier, Chemical & Analytical Developement, Novartis Pharma AG, Forum 1, Novartis Campus, 4056 Basel, Switzerland, e-mail: gottfried.sedelmeier@novartis.com

1. Adalimumab[a]	Humira®	Sales: 10.058 Mrd $	TNF inhibitor
2. Fluticasone + Salmeterol	Seretide®	Sales: 9.064 Mrd $	Corticosteroid + β2-adrenergic receptor agonist
3. Etanercept[b]	Enbrel®	Sales: 8.096 Mrd $	TNF inhibitor
4. Rosuvastatin	Crestor®	Sales: 8.025 Mrd $	HMG-CoA reductase inhibitor
5. Infliximab[a]	Remicade®	Sales: 7.805 Mrd $	TNF inhibitor
6. Esomeprazole	Nexium®	Sales: 7.773 Mrd $	Proton pump inhibitor
7. Insulin Glargin[c]	Lantus®	Sales: 7.773 Mrd $	Insulin analogon
8. Aripiprazole	Abilify®	Sales: 7.697 Mrd $	Atypical antipsychotic
9. Duloxetine	Cymbalta®	Sales: 6.373 Mrd $	Serotonin-norepinephrine reuptake inhibitor
10. Rituximab[d]	Mabthera®	Sales: 6.154 Mrd $	Cluster of differentiation CD20 antibody
11. Bevacizumab[a]	Avastin®	Sales: 5.518 Mrd $	Angiogenesis inhibitor
12. Tiotropium Bromide	Spiriva®	Sales: 5.256 Mrd $	Muscarinic receptor antagonist
13. Trastuzumab[a]	Herceptin®	Sales: 5.064 Mrd $	Interacts with the HER2/neu receptor
14. Pregabalin	Lyrica®	Sales: 5.060 Mrd $	Binds to the voltage-dependent calcium channel
15. Glatiramer	Copaxone® (Random polymer of:)	Sales: 4.650 Mrd $	May serve as decoy for the immune system
16. Ranibizumab[a]	Lucentis®	Sales: 4.490 Mrd $	Binds to the endothelial growth factor
17. Sitagliptin	Januvia®	Sales: 4.403 Mrd $	Dipeptidyl peptidase-4 inhibitor
18. Pegfilgrastim[e]	Neulasta®	Sales: 4.391 Mrd $	Granulocyte colony-stimulating factor
19. Imatinib	Glivec®	Sales: 4.123 Mrd $	Inhibits certain tyrosin kinases
20. Tenofovir + Emtricitabine + Efivarenz	Atripla®	Sales: 3.920 Mrd $	Reverse transcriptase inhibitors
21. Budesonide + Formoterol	Symbicort®	Sales: 3.878 Mrd $	Glucocorticoid steroid + β2-agonist
22. Insulin Aspart[f]	Novorapid®	Sales: 3.878 Mrd $	Insulin analogon
23. Tenofovir + Emtricitabine	Truvada®	Sales: 3.638 Mrd $	Reverse transcriptase inhibitors
24. Valsartan	Diovan®	Sales: 3.391 Mrd $	Angiotensin II receptor antagonist
25. Celecoxib	Celebrex®	Sales: 3.177 Mrd $	COX-2 inhibitor
26. Oxycodone	OxyContin®	Sales: 3.076 Mrd $	κ_{2b}-opioid agonist
27. Interferon Beta-1A[g]	Avonex®	Sales: 3.024 Mrd $	Activates immune system
28. Ezetimibe	Zetia®	Sales: 3.022 Mrd $	Decreases cholesterol absorption in the intestine
29. Quetiapine	Seroquel®	Sales: 2.588 Mrd $	Atypical antipsychotic
30. Insulin Lispro[h]	Humalog®	Sales: 2.584 Mrd $	Insulin analogon
31. Enoxaparin Sodium	Lovenox®	Sales: 2.569 Mrd $	Binds to antithrombin III
32. Atorvastatin	Lipitor®	Sales: 2.450 Mrd $	HMG-CoA reductase inhibitor
33. Pemetrexed	Alimta®	Sales: 2.412 Mrd $	Folate antimetabolite
34. Tadalafil	Cialis®	Sales: 2.393 Mrd $	cGMP-specific phospho-diesterase type 5 inhibitor
35. Interferon Beta 1A[g]	Rebif®	Sales: 2.389 Mrd $	Activates immune system
36. Insulin Detemir[i]	Levemir®	Sales: 2.360 Mrd $	Insulin analogon
37. Epoetin Alfa[j]	Epogen®	Sales: 2.204 Mrd $	Controles erythropoiesis
38. Clopidogrel	Plavix®	Sales: 2.156 Mrd $	$P2Y_{12}$ inhibitor
39. Sildenafil	Viagra®	Sales: 2.131 Mrd $	cGMP-specific phospho-diesterase type 5 inhibitor
40. Liraglutide	Victoza® (H2N-His-Ala-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val / Lys-Ala-Ala-Gln-Gly-Glu-Leu-Thr-Ser-Ser / Glu-Phe-Ile-Ala-Trp-Leu-Val-Arg-Gly-Arg-Gly-OH)	Sales: 2.116 Mrd $	Glucagon-like peptide-1 receptor agonist
41. Rivaroxaban	Xarelto®	Sales: 2.082 Mrd $	Inhibits Factor Xa
42. Darbepoetin Alfa[k]	Aranesp®	Sales: 2.016 Mrd $	Controles erythropoiesis
43. Sitagliptin + Metformin	Janumet®	Sales: 1.961 Mrd $	Dipeptidyl peptidase-4 Inhibitor + AMPK activator
44. Glucose blood Test	One touch ultra®	Sales: 1.910 Mrd $	Glucose blood test
45. Bortezomib	Velcade®	Sales: 1.888 Mrd $	Proteasome inhibitor
46. Fingolimod	Gilenya®	Sales: 1.870 Mrd $	Sphingosin-1-phosphate analog
47. Memantine	Namenda®	Sales: 1.865 Mrd $	NMDA-type gultamate receptor blocker
48. Simvastatin + Ezetimibe	Vytorin®	Sales: 1.856 Mrd $	HMG-CoA reductase inhibitor + decreases cholesterol absorption in the intestine
49. Lenalidomide	Revlimid®	Sales: 1.856 Mrd $	Multiple modes of action
50. Tacrolimus	Prograf®	Sales: 1.855 Mrd $	Calcineurin inhibitor
51. Insulin Aspart + Insulin Aspart Protamine[f]	Novomix®	Sales: 1.799 Mrd $	Insulin analogon
52. Olmesartan Medoxomil	Benicar®	Sales: 1.798 Mrd $	Angiotensin II receptor antagonist
53. Abiraterone	Zytiga®	Sales: 1.786 Mrd $	Inhibits CYP17A1
54. Dabigatran Etexilate	Pradaxa®	Sales: 1.781 Mrd $	Direct thrombin inhibitor
55. Darunavir	Prezista®	Sales: 1.754 Mrd $	Protease inhibitor
56. Lisdex-amfetamine	Vyvanse®	Sales: 1.754 Mrd $	Prodrug to dextroamphetamine
57. Pneumococcal Conjugate	Prevnar®	Sales: 1.750 Mrd $	Vaccine
58. Risperidone	Risperdal®	Sales: 1.749 Mrd $	Atypical antipsychotic (dopamine antagonist)
59. Denosumab[a]	Prolia®	Sales: 1.743 Mrd $	Inhibits the receptor activator of nuclear factor κ-B ligand (RANKL)
60. Mometasone Furoate	Nasonex®	Sales: 1.731 Mrd $	Glucocorticosteroid
61. Solifenacin	Vesicare®	Sales: 1.708 Mrd $	Competitive muscarinic acetyl-choline receptor antagonist
62. Epoetin Alfa[j]	Erypo®	Sales: 1.683 Mrd $	Controles erythropoiesis
63. Raltegravir	Isentress®	Sales: 1.678 Mrd $	Integrase inhibitor
64. Diclofenac	Voltaren®	Sales: 1.557 Mrd $	Cyclooxygenase inhibitor
65. Fluticasone Propionate	Flixotide®	Sales: 1.529 Mrd $	Corticosteroid
66. Capecitabine	Xeloda®	Sales: 1.495 Mrd $	Inhibits DNA synthesis
67. Bubrenophine + Naloxone	Suboxone®	Sales: 1.485 Mrd $	Opioid receptor agonists
68. Atazanavir	Reyataz®	Sales: 1.479 Mrd $	Protease inhibitor
69. Ustekinumab[l]	Stelara®	Sales: 1.445 Mrd $	Antibody against interleukin 12 and interleukin 23
70. Rabeprazole	Pariet®	Sales: 1.440 Mrd $	Proton pump inhibitor
71. Cetuximab[m]	Erbitux®	Sales: 1.435 Mrd $	Epidermial growth factor inhibitor
72. Everolimus	Certican®	Sales: 1.426 Mrd $	Selective mTORC1 inhibitor
73. Octreotide	Sandostatin®	Sales: 1.415 Mrd $	More potent mimic of the natural hormone somatostatin
74. Testosterone	Androgel®	Sales: 1.409Mrd $	Human hormone with many functions
75. Telmisartan	Micardis®	Sales: 1.345 Mrd $	Angiotensin II receptor antagonist
76. Palivizumab[a]	Synagis®	Sales: 1.339 Mrd $	Antibody against F protein in respiratory syncytial virus
77. Paliperidone palmitate	Invega Sustenna®	Sales: 1.334 Mrd $	Dopamine antagonist (atypical antipsychotic)
78. Abatacept[n]	Orencia®	Sales: 1.332 Mrd $	Inhibits the co-stimulation of T-cells
79. Omalizumab[o]	Xolair®	Sales: 1.307 Mrd $	Binds to human immunoglobuline IgE
80. Olanzapine	Zyprexa®	Sales: 1.290 Mrd $	Atypical antipsychotic
81. Interferon Beta-1B[g]	Betaferon®	Sales: 1.279 Mrd $	Activates immune system
82. Varicella Vaccine	Varivax®	Sales: 1.276 Mrd $	Vaccine
83. Natalizumab[a]	Tysabri®	Sales: 1.250 Mrd $	Antibody against α4-integrin
84. Entecavir	Baraclude®	Sales: 1.249 Mrd $	Nucleoside analog
85. Linezolid	Zyvox®	Sales: 1.246 Mrd $	Protein synthesis inhibitor
86. Erlotinib	Tarceva®	Sales: 1.246 Mrd $	Tyrosine kinase inhibitor
87. Donepezil	Aricept®	Sales: 1.237 Mrd $	Actetylcholinesterase inhibitor
88. Peginterferon Alfa-2A[p]	Pegasys®	Sales: 1.208 Mrd $	Activates immune system
89. Abacavir + Lamivudine	Epzicom®	Sales: 1.196 Mrd $	Nucleoside analog reverse transcriptase inhibitors
90. Teriparatide[q]	Forteo®	Sales: 1.184 Mrd $	Parathyroid hormone
91. Filgrastim[r]	Neupogen®	Sales: 1.180 Mrd $	Granulocyte colony-stimulating factor
92. Salbutamol	Salamol®	Sales: 1.178 Mrd $	β2-adrenergic receptor agonist
93. Human Papillo-mavirus vaccine	Gardasil®	Sales: 1.178 Mrd $	Vaccine
94. Golimumab[a]	Simponi®	Sales: 1.170 Mrd $	TNF inhibitor
95. Salbutamol	Ventolin®	Sales: 1.169 Mrd $	β2-adrenergic receptor agonist
96. Valsartan + Amlodipine	Exforge®	Sales: 1.167 Mrd $	Angiotensin II receptor antagonist + calcium channel blocker
97. Levetiracetam	Keppra®	Sales: 1.167 Mrd $	Binds to synaptic vesicle Protein SV2A
98. Dasatinib	Sprycel®	Sales: 1.159 Mrd $	Tyrosine kinase inhibitor
99. Lidocaine	Lidoderm®	Sales: 1.141 Mrd $	Blocks voltage gated sodium channels
100. Rivastigmine	Exelon®	Sales: 1.115 Mrd $	Cholinesterase inhibitor
101. Nilotinib	Tasigna®	Sales: 1.111 Mrd $	Tyrosine kinase inhibitor
102. Montelukast	Singulair®	Sales: 1.108 Mrd $	Leukotriene receptor antagonist
103. Methyl-phenidate	Methylphenidate	Sales: 1.100 Mrd $	Norepinephrine-dopamine reuptake inhibitor
104. Escitalopram	Cipralex®	Sales: 1.100 Mrd $	Selective serotonin reuptake inhibitor
105. Amlodipine	Norvasc®	Sales: 1.099 Mrd $	Calcium channel blocker
106. Lansoprazole	Takepron®	Sales: 1.083 Mrd $	Proton pump inhibitor
107. Dutasteride	Avodart®	Sales: 1.074 Mrd $	Dual 5-a reductase inhibitor
108. Tenofovir Disoproxil	Viread®	Sales: 1.063 Mrd $	Reverse transcriptase inhibitor
109. Cyclosporin	Restasis®	Sales: 1.054 Mrd $	Calcineurin inhibitor
110. Sevelamer carbonate	Renvela®	Sales: 1.047 Mrd $	Phosphate binding drug
111. Raloxifene	Evista®	Sales: 1.046 Mrd $	Selective estrogen receptor modulator
112. Octocog Alfa[s]	Recombinate®	Sales: 1.041 Mrd $	Essential blood clotting protein
113. Sunitinib	Sutent®	Sales: 1.040 Mrd $	Multi-targeted receptor tyrosine kinase inhibitor
114 Candesartan Cilexetil	Blopress®	Sales: 1.039 Mrd $	Angiotensin II receptor antagonist
115. Ipratropium Bromide + Salbutamol	Combivent®	Sales: 1.038 Mrd $	Muscarinic acetylcholine receptor blocker + β2-adrenergic receptor agonist
116. Esterified Fish Oils	Lovaza®	Sales: 1.030 Mrd $	Omega-3-fatty acids as ethyl esters
117. Leuprorelin	Enantone®	Sales: 1.019 Mrd $	Pituitary GnRH receptor antagonist
118. Budesonide	Budesonide	Sales: 1.013 Mrd $	Glucocorticoid steroid
119. Lamotrigine	Lamictal®	Sales: 1.002 Mrd $	Sodium channel blocker
120. Tocilizumab[a]	Actemra®	Sales: 0.977 Mrd $	TNF inhibitor
121. Zoledronic acid	Zometa®	Sales: 0.956 Mrd $	Inhibits bone resorption
122. Amoxicillin + Clavulanic acid	Augmentin®	Sales: 0.953 Mrd $	β-Lactam antibiotics
123. Levothyroxine Sodium	Synthroid®	Sales: 0.945 Mrd $	Synthetic thyroid hormone
124. Epinephrine autoinjector	Epipen®	Sales: 0.943 Mrd $	Delivers a measured dore of epinephrine
125. Dexlansoprazole	Dexilant®	Sales: 0.940 Mrd $	Proton pump inhibitor
126. Budesonide	Pulmicort®	Sales: 0.925 Mrd $	Glucocorticoid steroid
127. Mesalamine	Lialda®	Sales: 0.922 Mrd $	Cyclooxygenase inhibitor
128. Levonorgestrel	Mirena®	Sales: 0.900 Mrd $	Synthetic progestogen
129. Glucose Blood Test	Accu-Chek Aviva®	Sales: 0.900 Mrd $	Glucose blood test
130. Estrogenic Substances	Premarin®	Sales: 0.896 Mrd $	Replacement of estrogenic Hormones
131. Ipilimumab[a]	Yervoy®	Sales: 0.893 Mrd $	Targets the cytotoxic T-lymphocyte antigen 4 (CTLA-4)
132. Emtricitabine + Rilpivirine + Tenofovir Disoproxil	Complera®	Sales: 0.876 Mrd $	Reverse transcriptase inhibitors
133. Nicotinic acid	Niaspan®	Sales: 0.874 Mrd $	Vitamine; stimulates a G-protein-coupled receptor
134. Mycophenolate Mofetil	Cellcept®	Sales: 0.874 Mrd $	Inosine monophosphate dehydrogenase inhibitor
135. Pantoprazole	Pantozol®	Sales: 0.869 Mrd $	Proton pump inhibitor
136. Dimethyl Fumarate	Tecfidera®	Sales: 0.862 Mrd $	Might upregulate the nuclear factor (erythroid-derived 2)-related factor 2
137 Influenza Vaccine	Vaxigrip®	Sales: 0.852 Mrd $	Vaccine
138. Bimatoprost	Lumigan®	Sales: 0.851 Mrd $	Prostaglandin analog
139. Insulin Lispro + Insulin Lispro Protamine[h]	Humalog Mix®	Sales: 0.847 Mrd $	Insulin analogon
140. Eszopiclone	Lunesta®	Sales: 0.844 Mrd $	$GABA_A$ receptor agonist
141. Atomoxetine	Strattera®	Sales: 0.839 Mrd $	Selective norepinephrine reuptake inhibitor
142. Iohexol	Omnipaque®	Sales: 0.837 Mrd $	Contrast agent (iodine atoms!)
143. Immunoglobulin Base[a]	Privigen®	Sales: 0.834 Mrd $	Pooled, polyvalent IgG of over 1000 blood donors
144. Infant Milks	Similac advance®	Sales: 0.831 Mrd $	Infant milk formula
145. Bosentan	Tracleer®	Sales: 0.821 Mrd $	Endothelin receptor antagonist
146. Exenatide[t]	Byetta®	Sales: 0.821 Mrd $	Synthetic hormone
147. Certolizumab Pegol[a]	Cimzia®	Sales: 0.816 Mrd $	TNF inhibitor
148. Olmesartan Medoxomil + HCT	Benicar HCT®	Sales: 0.811 Mrd $	Angiotensin II receptor antagonist + diuretic
149. Ethinylestradiol + Etonogestrel	NuvaRing®	Sales: 0.806 Mrd $	Synthetic estrogen + progestin
150. Oseltamivir	Tamiflu®	Sales: 0.802 Mrd $	Antiviral medication
151. Somatropin[p]	Genotropin®	Sales: 0.795 Mrd $	Growth hormone
152. Mesalamine	Asacol®	Sales: 0.794 Mrd $	Multiple modes of action
153. Goserelin	Zoladex®	Sales: 0.793 Mrd $	Gonadotropin releasing hormone superagonist
154. Somatropin[u]	Norditropin®	Sales: 0.792 Mrd $	Growth hormone
155. Cinacalcet	Sensipar®	Sales: 0.785 Mrd $	Activates the calcium-sensing receptor
156. Eptacog Alfa[v]	Novoseven®	Sales: 0.783 Mrd $	Blood clotting protein
157. Valsartan + Hydrochlorothiazide	Co-Diovan®	Sales: 0.781 Mrd $	Angiotensin II receptor antagonist + diuretic
158. Amphetamine + Dexamphetamine	Amphetamine/ Dexamphetamine	Sales: 0.781 Mrd $	Releases dopamine and Norepinephrine
159. Desvenlafaxine	Pristiq®	Sales: 0.780 Mrd $	Serotonin-norepinephrine reuptake inhibitor
160. Leuprorelin	Lupron®	Sales: 0.767 Mrd $	Pituitary GnRH receptor antagonist
161. Amphetamine + Dexamphetamine	Adderall XR®	Sales: 0.761 Mrd $	Releases dopamine and Norepinephrine
162. Saxagliptin	Onglyza®	Sales: 0.756 Mrd $	Dipeptidyl peptidase-4 inhibitor
163. Glucose blood tests	Ascensia Contour®	Sales: 0.755 Mrd $	Glucose blood test
164. Ketoprofen	Sector®	Sales: 0.745 Mrd $	Cyclooxygenase inhibitor
165. Azacitidin	Vidaza®	Sales: 0.744 Mrd $	Cyctostatic cytidine analog
166. Octocog Alfa[s]	Kogenate®	Sales: 0.740 Mrd $	Essential blood clotting protein
167. Daptomycin	Cubicin®	Sales: 0.739 Mrd $	Lipopeptide antibiotic
168. Travoprost	Travatan®	Sales: 0.735 Mrd $	Synthetic prostaglandine analog
169. Glucose blood tests	Freestyle lite®	Sales: 0.734 Mrd $	Glucose blood test
170. Tolterodine	Detrusitol®	Sales: 0.723 Mrd $	Muscarinic receptor antagonist
171. Acetylsalicylic Acid	Aspirin®	Sales: 0.720 Mrd $	Cyclooxygenase inhibitor
172. Telmisartan + Hydrochlorothiazide	Micardis HCT®	Sales: 0.707 Mrd $	Angiotensin II receptor antagonist + diuretic
173. Paliperidone	Invega®	Sales: 0.707 Mrd $	Atypical antipsychotic (dopamine antagonist)
174. Lopinavir + Ritonavir	Kaletra®	Sales: 0.707 Mrd $	HIV protease inhibitor + cytochrome P450 3A4 inhibitor
175. Vildagliptin + Metformin	Eucreas®	Sales: 0.697 Mrd $	DPP-4 inhibitor + suppresses glucose production in the liver
176. Cyclosporin A	Sandimmun®	Sales: 0.692 Mrd $	Calcineurin inhibitor
177. Dorinase Alfa[w]	Pulmozyme®	Sales: 0.686 Mrd $	Recombinant human deoxyribonuclease I
178. Telaprevir	Incivek®	Sales: 0.684 Mrd $	NS3.4A serine protease inhibitor
179. Temozolomide	Temodal®	Sales: 0.683 Mrd $	Interfers with DNA replication
180. Voriconazole	Vfend®	Sales: 0.683 Mrd $	Antifungal medication
181. Valganciclovir	Valcyte®	Sales: 0.683 Mrd $	Antiviral medication
182. Bendamustine	Treanda®	Sales: 0.679 Mrd $	Nitrogen mustard
183. Alteplase[x]	Activase®	Sales: 0.662 Mrd $	Tissue plasminogen activator
184. Linagliptin	Tradjenta®	Sales: 0.660 Mrd $	Dipeptidyl peptidase-4 inhibitor
185. Nebivolol	Bystolic®	Sales: 0.659 Mrd $	Dipeptidyl peptidase-4 inhibitor
186. Varenicline	Champix®	Sales: 0.653 Mrd $	Nicotinic receptor partial agonist
187. Metoprolol	Betaloc®	Sales: 0.652 Mrd $	β1 receptor blocker
188. Paclitaxel	Abraxane®	Sales: 0.649 Mrd $	Binds to microtubules
189. Dexmethyl-phenidate	Focalin®	Sales: 0.645 Mrd $	Norepinephrine-dopamine reuptake inhibitor
190. Deferasirox	Exjade®	Sales: 0.636 Mrd $	Iron chelator
191. Fulvestrant	Faslodex®	Sales: 0.634 Mrd $	Estrogen receptor antagonist
192. Nifedipine	Adalat®	Sales: 0.629 Mrd $	Dihydropyridine calcium channel blocker
193. Beclometasone	Beclazone®	Sales: 0.627 Mrd $	Glucocorticosteroid
194. Immunoglobulin Base[a]	Gamunex®	Sales: 0.627 Mrd $	Pooled, polyvalent IgG
195. Pitavastatin	Livalo®	Sales: 0.623 Mrd $	HMG-CoA reductase inhibitor
196. Moxifloxacin	Avelox®	Sales: 0.622 Mrd $	Broad-spectrum antbiotic
197. Palonosetron	Aloxi®	Sales: 0.622 Mrd $	$5\text{-}HT_3$ antagonist
198. Lacosamide	Vimpat®	Sales: 0.614 Mrd $	Might slowly inactivate voltage gated sodium channels
199. Fexofenadine	Telfast®	Sales: 0.614 Mrd $	Selective H_1 receptor antagonist
200. Sertraline	Zoloft®	Sales: 0.611 Mrd $	Selective serotonin reuptake inhibitor

Top 200 drugs by worldwide sales 2013 according to data collected by IMS Health in 66 countries (Source: IMS Health, IMS Padds, February 2014). All data on this poster may only be used purely for academic purposes. All logos, brands, and trademarks represented on this poster are property of the respective copyright owner. Another representation of the top 200 drugs by worldwide sales in 2008 & 2009 was developed by the Njardarson-group: http://cbc.arizona.edu/njardarson/group/top-pharmaceuticals-poster. [a] Monoclonal immunoglobulin G1 antibodies. Picture: Human immunoglobulin G1 (L. W. Guddat, J. N. Herron, A. B. Edmundson, *Proc. Natl. Acad. Sci.* **1993**, *90*, 4271-4275).– [b] Fusion Protein of the human tumor necrosis factor receptor and human immunoglobulin G1. Picture: Extracellular domain of the 55 kDa human tumor necrosis factor (J. H. Naismith, T. Q. Devine, T. Kohno, S. R. Sprang, *Structure* **1996**, *4*, 1251-1262).– [c] Insulin Glargin is an analog of human insulin with prolongued activity. The difference to human insulin is glycin instead of asparagin in position A21 and and the B-chain is elongated by two arginins. Picture: Human Insulin (V. I. Timofeev, A. V. Lyashenko, Y. A. Kislitsyn, A. N. Baidus, I. P. Kuranova, *to be published according to the RCSB protein data bank*).– [d] Monoclonal immunoglobulin G1 antibody. Picture: Crystal structure of the rituximab FAB fragment with a protein epitope (J. Du, H. Wang, C. Zhong, B. Peng, M. Zhang, B. Li, S. Huo, Y. Guo, J. Ding, *J. Biol. Chem.* **2007**, *282*, 15073-15080).– [e] PEGylated recombinant human granuleucyte colony-stimulating factor analog filgrastim. Picture: Human granuleucyte colony-stimulating factor (T. Zink, A. Ross, K. Lueers, Ch. Cieslar, R. Rudolph, T. A. Holak, *Biochemistry* **1994**, *33*, 8453–8463).– [f] Insulin Aspart is a fast acting analog of human insulin. The difference to human insulin is aspartic acid instead of prolin in position B28. Picture: see footnote c.– [g] Recombinant human interferone. Picture: Human Iinterferone beta (M. Karpusas, M. Nolte, C.B. Benton, W. Meier, W. N. Lipscomb, S. Goelz, *Proc. Natl. Acad. Sci.* **1997**, *94*, 11813-11818).– [h] Insulin Lispro is a fast acting analog of human insulin. The difference to human insulin is the exchange of proline and lysin in position B28 and B29. Picture: see footnote c.– [i] Insulin Detemir is a long acting analog of human insulin. The difference to human insulin is a fatty acid bound to lysin in position B29. Picture: see footnote c.– [j] Epoetins are recombinant forms of the human erythropoetin with identical amino acid sequences and disulide bridges but different glycosylation patterns. Picture: NMR structure of human erythropoetin (J. C. Cheetham, D. M. Smith, K. H. Aoki, J. L. Stevenson, T. J. Hoeffel, R. S. Syed, J. Egrie, T. S. Harvey, *Nat. Struct. Biol*. **1998**, *5*, 861-866).– [k] Synthetic erythropoetin. Picture: see footnote j.– [l] Recombinant humanized immunoglobulin G1. Picture: Crystal structure of the FAB fragment of Ustekinumab (J. Luo, S.-J. Wu, E. R. Lacy, Y. Orlovsky, A. Baker, A. Teplyakov, G. Obmolova, G. A. Heavner, H.-T. Richter, J. Benson, *to be published according to the RCSB protein data bank*).– [m] Picture: Crystal structure of the Fab-Fragment of Cetuximab (S. Li, K. R. Schmitz, P. D. Jeffrey, J. J. W. Wiltzius, P. Kussie, K. M. Ferguson, *Cancer Cell* **2005**, *7*, 301-311). [n] Recombinant fusion protein of Oncostatin, CLTA-4 and a fragment of the IgG heavy chain. Picture: Left: Crystal structure of Oncostatin M (M. C. Deller, K. R. Hudson, S. Ikemizu, J. Bravo, E. Y. Jones, J. K. Heath, *Structure Fold. Des.* **2000**, *8*, 863-874), right: NMR solution structure of CTLA-4 (W. J. Metzler, J. Bajorath, W. Fenderson, S. Y. Shaw, K. L. Constantine, J. Naemura, G. Leytze, R. J. Peach, T. B. Lavoie, L. 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