

# Light-Sensitive Injectable Prescription Drugs—2022

Hospital Pharmacy  
2023, Vol. 58(5) 448–475  
© The Author(s) 2023  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/00185787221133804  
journals.sagepub.com/home/hpx



Jessica M. Elste<sup>1</sup>, Heather J. Ipema<sup>1</sup>,  
Christie Denton<sup>1</sup>, Faria Munir<sup>1</sup>, Ruba Alomari<sup>1</sup>,  
Anna Dazy<sup>1</sup>, Rosa Macrito<sup>1</sup>, and Nicole Szydowski<sup>1</sup>

## Abstract

This chart is an update to the 2014 article published in Hospital Pharmacy on injectable drugs that require protection from light. To update the chart, an online search of the FDALabel database was performed from inception through July 31, 2022 using the terms “protect” OR “light.” After filtering out drugs with non-injectable routes of administration, the list of generic drug names was combined with the 2014 list and duplicates were removed. The resulting list of drugs was then reviewed to determine whether the drugs require protection from light during storage, preparation, or administration. The reader should always consult the Food and Drug Administration-approved prescribing information for the most up-to-date information regarding the need for protection from light.

## Keywords

dispensing, drug information, medication process

## Introduction

Exposure to light is a concern with numerous medications due to the potential for photodegradation or other chemical reactions that affect drug stability. The purpose of this table is to update the list of injectable drugs that require protection from light that was previously published in Hospital Pharmacy in 2014.<sup>1</sup>

A list of injectable medications that potentially required light protection was generated utilizing the online FDALabel database.<sup>2</sup> An advanced search of the database was conducted in October 2021. Specific details of the search included a labeling type of “human prescription drug,” an application type of New Drug Application or Biologic License Application, and the search terms “protect” OR “light.” The spreadsheet generated from this request was then reviewed to eliminate drug products with non-injectable routes of administration (eg, oral). The final list of generic drug names was then combined with the list of drugs included in the 2014 publication and duplicate entries were removed. For drug classes that appeared to have several medications requiring light protection, monographs for the entire class were checked. A supplementary search was performed in early August 2022 to ensure inclusion of newly approved injectable medications through July 31, 2022. Products that were not approved by the Food and Drug Administration were not considered further.

The most recent prescribing information (PI) was used as the primary resource for each injectable medication (confirmed as the most recent in July 2022). Additional resources were used to support information from the PI.<sup>3,4</sup> For medications with multiple manufacturers and/or brand names, all brand name PIs were checked as well as the most recent generic PI. At least one PI was reviewed for all injectable formulations listed in the Drugs@FDA database for an individual drug.<sup>5</sup> When it was found that not all manufacturers specified the need for light protection, this was noted in the additional comments field and only the brand names of products requiring light protection were listed with the generic name in the first column of the table. When information was not available or consistent among these resources, additional sources were checked, a literature search was performed, and/or the manufacturer was contacted. All sources that were used are referenced accordingly. Despite efforts to confirm the information in at least 2 additional sources, some medications have the PI as the only source with instructions for light protection. When stability depends on light protection during

<sup>1</sup>University of Illinois at Chicago College of Pharmacy, Chicago, IL, USA

### Corresponding Author:

Jessica M. Elste, University of Illinois at Chicago College of Pharmacy, 833 S Wood Street, 164 PHARM (MC 886), Chicago, IL 60612, USA.  
Email: jzacher2@uic.edu

**Table I.** Injectable Drugs That Require Protection From Light During Storage, Preparation, or Administration.<sup>3,4,6-649</sup>

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Abatacept <i>Orencia</i>	X				Protect from light by storing in the original package until time of use. <sup>5</sup>
AbobotulinumtoxinA <i>Dysport</i>	X	X			Protect from light. <sup>7</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
Adalimumab <i>Humira</i>	X				Store in original carton until time of administration to protect from light. <sup>8</sup>
Aducanumab-avwa <i>Aduhelm</i>	X				Store in original carton until use to protect from light. <sup>9</sup>
Aflibercept <i>Eylea</i>	X				Store in the original carton until time of use to protect from light. <sup>10</sup>
Ziv-Aflibercept <i>Zaltrap</i>	X				Keep the vials in the original outer carton to protect from light. <sup>11</sup>
Albumin, human <sup>b</sup> <i>Albuminex</i> <i>Kedbumin</i>	X				Keep the vial stored in the outer carton in order to protect from light. <sup>12,13</sup>
Aldesleukin <i>Proleukin</i>	X				Protect from light. <sup>14</sup> Store in carton until time of use.
Alemtuzumab <i>Lemtrada</i>	X		X		Store in original carton to protect from light. <sup>15</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Alfentanil hydrochloride	X				Protect from light. <sup>16</sup> Retain in carton until time of use.
Alglucosidase alfa <i>Lumizyme</i>	X	X	X		Protect from light during storage. <sup>4</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. <sup>17</sup>
Alirocumab <i>Praluent</i>	X				Store in the original carton to protect from light. <sup>18</sup>
Alteplase <i>Activase</i> <i>Cathflo Activase</i>	X				Protect the lyophilized material during extended storage from excessive exposure to light. <sup>19,20</sup>
Amino acid preparations <sup>b</sup> <i>Aminosyn II</i> <i>Aminosyn-PF</i> <i>Clinimix</i> <i>Clinimix E</i> <i>HepatAmine</i> <i>Plenamix</i> <i>Premasol</i> <i>ProcalAmine</i> <i>Prosol</i> <i>Travasol</i> <i>Trophamine</i>	X				<i>Aminosyn II, Aminosyn-PF:</i> Avoid exposure to light. <sup>21,22</sup> <i>ProcalAmine, HepatAmine, Premasol, Plenamix:</i> Protect from light until use. <sup>23-26</sup> <i>Clinimix, Clinimix E, Prosol, Travasol:</i> Protect the activated parenteral nutrition solution from light. <sup>27-30</sup> <i>Trophamine:</i> Protect from light. <sup>31</sup> Do not expose TrophAmine and/or TrophAmine containing admixed parenteral nutrition solution to light.
Aminophylline	X				Protect from light. <sup>32</sup> Store in carton until time of use.
Amiodarone hydrochloride <i>Nexterone</i>	X				Use carton to protect contents from light until used. <sup>33</sup> Light protection is not necessary during administration, but exposure to direct sunlight should be avoided. <sup>3</sup>
Amisulpride <i>Barhemsys</i>	X				Protect from light. <sup>34</sup> Amisulpride is subject to photodegradation. Administer within 12h of removal of the vial from the protective carton.
Amivantamab-vmjw <i>Rybrevant</i>	X				Store in original carton to protect from light. <sup>35</sup>
Amphotericin B	X	X		X	Protect against exposure to light prior to reconstitution. <sup>36</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution. Solutions should be protected from light during administration. Several reports indicate that for short-term exposure, little difference in potency is observed between light-protected and light-exposed solutions. <sup>3</sup>
Amphotericin B lipid complex <sup>b</sup> <i>Abelcet</i>	X				Store protected from exposure to light; retain in the carton until time of use. <sup>37</sup>
Anakinra <i>Kineret</i>	X				Protect from light. <sup>38</sup> Keep in original carton.
Anifrolumab-fnia <i>Saphnelo</i>	X		X		Store in original carton to protect from light. <sup>39</sup> Protect diluted solution from light.
Ansuvimab-zykl <i>Ebanga</i>	X	X	X		Store in original carton to protect from light. <sup>40</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
<b>Antihemophilic factor, recombinant</b> Advate Adynovate Afstyla Esperoct Jivi Kogenate FS Kovaltry Novoeight Nuwiq Obizur Recombinate Xyntha Xyntha Solofuse	X	X			Advate, Adynovate, Jivi, Kogenate FS, Kovaltry, Recombinate: Store in the original carton to protect from extreme exposure to light. <sup>41-46</sup> Afstyla: Store in the original box to protect from light. <sup>47</sup> Protect from direct sunlight. Esperoct, Novoeight, Nuwiq, Obizur: Store in the original package to protect from light. <sup>48-51</sup> Xyntha, Xyntha Solofuse: During storage, avoid prolonged exposure to light. <sup>52,53</sup> Afstyla, Esperoct, Novoeight, Nuwiq: Protect mixed/reconstituted solutions from direct light/sunlight. <sup>47-50</sup>
Antihemophilic factor, plasma-derived <sup>b</sup> Koate	X				Store in original package to protect from light. <sup>54</sup>
Antiinhibitor coagulant complex Feiba	X				Store in the original package to protect from light. <sup>55</sup>
Antithymocyte globulin, equine Atgam	X				Store in the original carton to protect from light. <sup>56</sup>
Antithymocyte globulin, rabbit Thymoglobulin	X				Protect from light. <sup>57</sup>
<b>Argatroban</b>	X		X		Retain in the original carton to protect from light. <sup>58,59</sup> Prepared solutions should not be exposed to direct sunlight. <sup>58</sup> Concentrate for injection: Stability of diluted solutions of the concentrate for injection is affected by light exposure; refer to prescribing information or tertiary resources for details regarding storage of the concentrate for injection after dilution. <sup>58</sup>
Aripiprazole <sup>b</sup> Abilify Maintena	X				Protect the syringe from light by storing in the original package until time of use. <sup>60</sup>
Artesunate	X				Keep protected from light. <sup>61</sup>
Articaine hydrochloride and epinephrine bitartrate Septocaine	X				Protect from light. <sup>62</sup>
Ascorbic acid Ascor	X				Protect from light. <sup>63</sup> Minimize exposure to light during preparation and administration; ascorbic acid is light sensitive.
Asfotase alfa Strensiq	X				Store in the original container protected from light until the time of use. <sup>64</sup>
Asparaginase erwinia chrysanthemi-rywn, recombinant Rylaze	X				Store in the original carton to protect from light. <sup>65</sup>
Atezolizumab Tecentriq	X				Store in original carton to protect from light. <sup>66</sup>
Atoltivimab, maftivimab, and odesivimab-ebgn Inmazeb	X				Prior to dilution, store in the original carton to protect from light. <sup>67</sup>
Avelumab Bavencio	X		X		Store in original package to protect from light. <sup>68</sup> Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for details regarding storage after dilution. <sup>4</sup>
Azathioprine sodium	X				Protect from light. <sup>69</sup> Retain in carton until time of use.
Bacillus Calmette-Guerin (BCG) BCG vaccine TICE BCG	X	X			Protect from direct sunlight during storage and after reconstitution. <sup>70,71</sup>
Belatacept Nulajix	X		X		Protect from light by storing in the original package until time of use. <sup>72</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
Belimumab Benlysta	X	X			All products: Keep the product in the original carton to protect from light until the time of use. <sup>73</sup> Vial for reconstitution: Protect the reconstituted solution from sunlight. <sup>73</sup>
Bendamustine hydrochloride Belrapzo Bendeka Treanda	X				Retain in original package until time of use to protect from light. <sup>74-76</sup>

(continued)

Table 1. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Benralizumab <i>Fasenra</i>	X				Store in the original carton to protect from light. <sup>77</sup>
Beractant <i>Survanta</i>	X				Protect from light. <sup>78</sup> Store vials in carton until ready for use.
Betamethasone acetate and betamethasone sodium phosphate <i>Celestone Soluspan</i>	X				Protect from light. <sup>79</sup>
Bevacizumab and biosimilars <i>Alymsys (bevacizumab-maly)</i> <i>Avastin</i> <i>Mvasi (bevacizumab-awwb)</i> <i>Zirabev (bevacizumab-bvzr)</i>	X				Store in the original carton to protect from light. <sup>80-83</sup>
Bezlotoxumab <i>Zinplava</i>	X				Store in original carton to protect from light. <sup>84</sup>
Blinatumomab <i>Blincto</i>	X				Store the drug and IV solution stabilizer vials in the original package and protect from light until time of use. <sup>85</sup>
Bortezomib <i>Velcade</i>	X	X			Retain in original package to protect from light. <sup>86</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information or tertiary resources for details regarding storage after reconstitution.
Bremelanotide acetate <i>Vyleesi</i>	X				Protect from light. <sup>87</sup>
Brentuximab vedotin <i>Adcetris</i>	X				Store in the original carton to protect from light. <sup>88</sup>
Brexanolone <i>Zulresso</i>	X				Store protected from light. <sup>89</sup>
Brilliant Blue G <i>TissueBlue Syringe</i>	X				Protect from light. <sup>90</sup>
Brodalumab <i>Siliq</i>	X				Store in the original carton to protect from light. <sup>91</sup>
Brolucizumab-dbl <i>Beovu</i>	X				Store in the outer carton to protect from light. <sup>92</sup>
Bumetanide	X				Protect from light. <sup>93</sup> Retain in carton until ready to use.
Bupivacaine and meloxicam <i>Zynrelef</i>	X				Protect from light. <sup>94</sup>
Bupivacaine hydrochloride <sup>b</sup> <i>Marcaine</i>	X				Protect from light. <sup>95</sup>
Bupivacaine hydrochloride and epinephrine bitartrate <i>Marcaine with epinephrine</i> <i>Sensorcaine with epinephrine</i>	X				Protect from light. <sup>95,96</sup>
Buprenorphine hydrochloride <sup>b</sup> <i>Buprenex</i>	X				Protect from prolonged exposure to light. <sup>97</sup>
Burosumab-twza <i>Crysvita</i>	X				Keep in the original carton to protect from light until time of use. <sup>98</sup>
Butorphanol tartrate	X				Protect from light. <sup>99</sup> Retain in carton until time of use.
CI esterase inhibitor, human <i>Beriner</i> <i>Cinryze</i> <i>Haegarda</i>	X				Store in the original carton to protect from light. <sup>100-102</sup>
CI esterase inhibitor, recombinant <i>Ruconest</i>	X				Store in the original carton and protect from light. <sup>103</sup>
Calaspargase pegol-mknl <i>Asparlas</i>	X		X		Store in the original carton to protect from light. <sup>104</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Calcitriol	X				Protect from light. <sup>105</sup>
Canakinumab <i>Ilaris</i>	X				Store in the original carton to protect from light. <sup>106</sup>
Caplacizumab-yhdp <i>Cablivi</i>	X				Store in the original carton to protect from light. <sup>107</sup>
Carboplatin	X				Protect from light. <sup>108</sup> Premixed solutions require protection from light. <sup>4</sup>
Carfilzomib <i>Kyprolis</i>	X				Retain in original package to protect from light. <sup>109</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Carmustine <i>BiCNU</i>	X	X	X		Must be protected from light in all forms. <sup>4</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. <sup>110</sup>
Casimersen <i>Amondys</i>	X				Store in original carton until ready for use to protect from light. <sup>111</sup>
Cefazolin sodium	X	X			Protect from light. <sup>112</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>113</sup> Protection from light is recommended for both the powder and its solutions. <sup>3</sup>
Cefepime hydrochloride	X				Protect from light. <sup>114</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>115</sup>
Cefiderocol sulfate tosylate <i>Fetroja</i>	X		X		Protect from light. <sup>116</sup> Store in the carton until time of use. Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Cefotaxime sodium	X	X	X		The dry material and solutions should be protected from excessive light. <sup>117</sup>
Cefotetan disodium <i>Cefotan</i>	X				Protect from light. <sup>118</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>119</sup>
Cefoxitin sodium	X				Protect dual chamber formulations from light after removal of foil strip. <sup>120</sup> Other formulations do not require protection from light.
Ceftazidime <i>Fortaz</i> <i>Tazicef</i>	X				Protect from light. <sup>121,122</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>123</sup>
Ceftazidime and avibactam sodium <i>Avycaz</i>	X				Protect from light. <sup>124</sup> Store in carton until time of use.
Ceftolozane sulfate and tazobactam sodium <i>Zerbaxa</i>	X				Protect from light. <sup>125</sup>
Ceftriaxone sodium	X				Protect from light. <sup>126</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>127</sup>
Cefuroxime sodium	X				Protect from light. <sup>128</sup> Protect dual chamber formulations from light after removal of foil strip. <sup>129</sup>
Cemiplimab-rwlc <i>Libtayo</i>	X				Protect from light. <sup>130</sup>
Cerliponase alfa <i>Brineura</i>	X				Store in original carton to protect from light. <sup>131</sup>
Certolizumab pegol <i>Cimzia</i>	X				Protect solution from light. <sup>132</sup> Store prefilled syringes in the original carton to protect from light.
Cetrotorelix <i>Cetrotide</i>	X				Keep the packaged tray in the outer carton in order to protect it from light. <sup>133</sup>
Chloroprocaine hydrochloride <i>Clorotekal</i> <i>Nesacaine</i> <i>Nesacaine MPF</i>	X				Protect from light. <sup>134,135</sup> Store in original outer container, protected from direct sunlight. <sup>135</sup>
Chlorpromazine hydrochloride	X				Protect from light. <sup>136</sup>
Choriogonadotropin alfa <sup>b</sup> <i>Ovidrel</i>	X				Protect from light. <sup>137</sup>
Ciprofloxacin <i>Otiprio</i>	X				All products: Protect from light. <sup>138,139</sup> <i>Otiprio</i> : Store in the original container until dose preparation. <sup>139</sup>
Cisatracurium besylate <i>Nimbex</i>	X				Protect from light. <sup>140</sup>
Cisplatin	X		X		Protect unopened container from light. <sup>141</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information or tertiary resources for details regarding storage after dilution.
Cladribine	X				When stored properly and protected from light, unopened vials are stable until the expiration date indicated on the package. <sup>142</sup>
Clevidipine <i>Cleviprex</i>	X				Protect from light. <sup>3,4</sup> Storage in cartons protects against photodegradation. <sup>143</sup>
Coagulation factor IX, recombinant <sup>b</sup> <i>Alprolix</i> <i>Idelvion</i> <i>Ixinity</i> <i>Rebinyx</i>	X	X			All products: Store in the original package to protect from light. <sup>144-147</sup> <i>Alprolix</i> : Protect reconstituted solution from direct sunlight. <sup>144</sup> <i>Rebinyx</i> : Keep mixed solution out of direct light. <sup>147</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Coagulation factor X, human <i>Coagadex</i>	X				Store in original package to protect from light. <sup>148</sup>
Conivaptan hydrochloride <i>Vaprisol</i>	X				Protect from light until ready to use. <sup>149</sup> Do not remove container from overwrap until ready for use. The overwrap is a light barrier.
Corticotrelin ovine triflutate <i>Acthrel</i>	X				Protect from light. <sup>150</sup>
Crizanlizumab-tmca <i>Adakveo</i>	X		X		Store and transport in the original carton to protect from light. <sup>151</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Cyanocobalamin	X				The Vitamin B coenzymes are very unstable in light and require protection from light. <sup>152</sup>
Cyclosporine <i>Sandimmune</i>	X				Protect from light. <sup>153</sup>
Cysteine hydrochloride <i>Elcys</i>			X		Protect parenteral nutrition solution from light. <sup>154</sup>
Cytarabine	X				Protect from light. <sup>155</sup>
Dacarbazine	X				Protect from light. <sup>156</sup>
Dactinomycin <i>Cosmegen</i>	X				Protect from light. <sup>157</sup>
Dantrolene sodium <i>Dantrium</i> <i>Revonto</i> <i>Ryanodex</i>	X	X			<i>All products:</i> Avoid prolonged exposure to light. <sup>158-160</sup> <i>Dantrium, Revonto:</i> Protect vial contents from direct light. <sup>158,159</sup> Stability of reconstituted solutions is affected by direct light exposure; refer to prescribing information for details regarding storage after reconstitution.
Daratumumab <i>Darzalex</i>	X		X		Protect from light. <sup>161</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Daratumumab and hyaluronidase-fihj <i>Darzalex Faspro</i>	X				Store in the original carton to protect from light. <sup>162</sup> Keep out of direct sunlight.
Darbepoetin alfa <i>Aranesp</i>	X				Protect from light; store in the carton until use. <sup>163</sup>
Dasiglucagon hydrochloride <i>Zegalogue</i>	X				Store in the provided protective case and protect from light. <sup>164</sup>
Daunorubicin and cytarabine liposome <i>Vyxeos</i>	X				Store in original carton to protect from light. <sup>165</sup>
Daunorubicin hydrochloride	X				Protect from light. <sup>166</sup> Protect from sunlight. <sup>4</sup>
Denosumab <i>Prolia</i> <i>Xgeva</i>	X				<i>Prolia:</i> Keep in the original carton to protect from light. Protect from direct light. <sup>167</sup> <i>Xgeva:</i> Protect from direct light. <sup>168</sup>
Dexamethasone sodium phosphate	X				Protect from light. <sup>169</sup> Some manufacturers recommend storing in carton until time of use.
Diatrizoate <i>Cystografin</i> <i>Cystografin Dilute</i>	X				Protect from light. <sup>170,171</sup>
Diazepam	X				Protect from light. <sup>172</sup>
Digoxin <i>Lanoxin</i> <i>Lanoxin Pediatric</i>	X				Protect from light. <sup>173</sup>
Dihydroergotamine mesylate <i>D.H.E. 45</i>	X				Use carton to protect contents from light until used. <sup>174</sup>
Dimenhydrinate	X				Protect from light. <sup>175</sup>
Dinutuximab <i>Unituxin</i>	X				Protect from light until time of use by storing in the outer carton. <sup>176</sup>
Diphenhydramine hydrochloride	X				Protect from light. <sup>177</sup> Some manufacturers recommend storing in a light-resistant container until time of use. <sup>3</sup>
Dipyridamole	X				Keep covered in carton until time of use to protect from light. <sup>4,178</sup>
Docetaxel <i>Taxotere</i>	X				Store in the original package to protect from light. <sup>179</sup>
Dostarlimab-gxly <i>Jemperli</i>	X				Store in the original carton to protect from light. <sup>180</sup>
Doxercaliferol <sup>P</sup> <i>Hectorol</i>	X				Store in the original carton to protect from light. <sup>181</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Doxorubicin hydrochloride	X	X	X	X	Retain in carton until time of use to protect from light. <sup>182</sup> Protect from light from preparation until completion of infusion. Doxorubicin is sensitive to light and should be protected from sunlight. <sup>3</sup> Liposomal doxorubicin does not require protection from light.
<b>Doxycycline hyclate</b> <i>Doxy 100</i>	X	X	X	X	Retain in carton until time of use to protect from light. <sup>183</sup> Stability of reconstituted and diluted solutions is affected by direct sunlight and artificial light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
<b>Droperidol</b>	X				Protect from light. <sup>184</sup> Retain in carton until time of use.
Dulaglutide <i>Trulicity</i>	X				Protect from light. <sup>185</sup> Store in original carton until the time of administration.
Dupilumab <i>Dupixent</i>	X				Store in the original carton to protect from light. <sup>186</sup> Do not expose to direct sunlight.
Durvalumab <i>Imfinzi</i>	X				Store in original carton to protect from light. <sup>187</sup>
Ecallantide <i>Kalbitar</i>	X				Protect vials from light until use. <sup>188</sup>
Eculizumab <i>Soliris</i>	X				Store in the original carton to protect from light until time of use. <sup>189</sup>
Edaravone <i>Radicava</i>	X				Protect from light. <sup>190</sup>
Efgartigimod alfa <i>Vyvgart</i>	X		X		Store in the original carton to protect from light until time of use. <sup>191</sup> Protect diluted solution from light.
Elapegademase-lvr <i>Revcovi</i>	X				Store in the original carton to protect from light. <sup>192</sup>
Elosulfase alfa <i>Vimizim</i>	X				Protect from light. <sup>193</sup>
Elotuzumab <i>Empliciti</i>	X		X		Protect from light by storing in the original package until time of use. <sup>194</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Emapalumab-lzsg <i>Gamifant</i>	X				Store in original carton to protect from light. <sup>195</sup>
Emicizumab <i>Hemlibra</i>	X				Store in the original carton to protect from light. <sup>196</sup>
<b>Ephedrine sulfate<sup>b</sup></b> <i>Akovaz</i>	X				Store in original carton until time of use to protect from light. <sup>3,4,197</sup>
<b>Epinephrine</b> <i>Adrenadick</i> <i>Adrenalin</i> <i>Auvi-Q</i> <i>Epipen</i> <i>Epipen Jr.</i> <i>Symjepi</i>	X				<i>All products:</i> Protect from light. <sup>198-202</sup> Epinephrine solution is light sensitive and deteriorates rapidly on exposure to light. <i>Adrenadick, Auvi-Q, Epipen, Epipen Jr., Symjepi:</i> Store in the provided case/tube to protect from light. <sup>199-202</sup>
Epirubicin hydrochloride <i>Ellence</i>	X				Protect from light. <sup>203</sup> Keep in original carton to protect from light. <sup>4</sup>
Epoetin alfa and biosimilars <i>Epogen</i> <i>Procrit</i> <i>Retacrit (epoetin alfa-epbx)</i>	X				Store vials in the original carton until use to protect from light. <sup>204-206</sup>
<b>Epoprostenol sodium</b> <i>Flolan</i> <i>Veletri</i>	X	X			<i>Flolan:</i> Protect powder from light by keeping unopened vial in the carton. <sup>207</sup> Protect reconstituted solution from light if not used immediately. <sup>3,207</sup> <i>Veletri:</i> The unopened vial should be kept in the carton and not exposed to direct sunlight. <sup>208</sup> Do not expose the reconstituted solution to direct sunlight.
Eptifibatide	X				Protect from light until administration. <sup>209</sup> Some manufacturers recommend storing in the carton until administration.
Eptinezumab-ijmr <i>Vyepti</i>	X				Store in the original carton to protect from light until time of use. <sup>210</sup>
Eravacycline dihydrochloride <i>Xerava</i>	X				Protect from light. <sup>211</sup> Keep vial in carton until use.
Erenumab-aooe <i>Aimovig</i>	X				Store in the original carton to protect from light until time of use. <sup>212</sup> Prior to administration, allow to sit at room temperature for at least 30 min protected from direct sunlight. Once outside the carton, do not leave in direct sunlight.

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
<b>Esomeprazole sodium</b> Nexium I.V.	X				Protect from light. <sup>213</sup> Store in carton until time of use.
Etanercept <sup>a</sup> Enbrel	X				Store in the original carton to protect from light. <sup>214</sup> Keep out of direct sunlight.
Etelcalcetide Parsabiv	X				Store in the original carton to protect from light. <sup>215</sup> If removed from the original carton, do not expose to direct sunlight.
Eteplirsen Exondys 51	X				Protect from light. <sup>216</sup> Store in the original carton until ready for use.
Ethanolamine oleate Ethamolin	X				Protect from light. <sup>217</sup>
Ethiodized oil Lipiodol	X				Protect from light. <sup>218</sup> Remove from carton only upon use.
Etoposide phosphate <sup>b</sup> Etopophos	X				<i>Vial, powder:</i> Keep vial in outer carton to protect from light. <sup>219</sup> Other formulations do not require protection from light.
Evinacumab-dgnb Evkeeza	X				Store the vial in the original carton to protect from light. <sup>220</sup>
Evolocumab Repatha	X				Store in the original carton to protect from light. <sup>221</sup> Do not leave in direct sunlight.
Exenatide, synthetic Bydureon Bcise Byetta	X				<i>All products:</i> Protect from light. <sup>222,223</sup> <i>Bydureon Bcise:</i> Store in the original package. <sup>222</sup>
<b>Factor VIIa, recombinant</b> NovoSeven RT SevenFACT	X	X			<i>NovoSeven RT:</i> Store protected from light. <sup>224</sup> <i>SevenFact:</i> Store in the product package to protect from light. <sup>225</sup> <i>All products:</i> Keep the reconstituted solution out of direct light. <sup>224,225</sup>
Factor XIII A-subunit, recombinant Tretten	X	X			Store in the original package to protect from light. <sup>226</sup> Keep mixed solution out of direct sunlight.
Factor XIII concentrate, human Corifact	X				Keep in original carton to protect from light. <sup>227</sup>
Faricimab Vabysmo	X				Keep in the original carton to protect from light. <sup>228</sup>
Fentanyl citrate	X				Protect from light. <sup>229,230</sup> Some manufacturers recommend storing in carton or tray until time of use. <sup>3,229</sup>
Ferric pyrophosphate citrate Triferic Triferic Avnu	X				Protect from light. <sup>231,232</sup> Keep ampule in pouch until time of use.
Fibrinogen concentrate, human Fibryga RiaSTAP	X				Protect from light. <sup>233,234</sup> Keep in the original carton until ready to use.
<b>Filgrastim and biosimilars</b> Neupogen Nivestym (filgrastim-aafi) Releuko (filgrastim-avow) Zarxio (filgrastim-sndz) tbo-Filgrastim Granix	X				<i>All products:</i> Store in the original carton to protect from light. <sup>235-238</sup> <i>Neupogen, Nivestym:</i> Do not leave in direct sunlight. <sup>235,236</sup>
Fish oil triglycerides lipid emulsion Omegaven SMOFlipid	X		X		Protect the admixed parenteral nutrition solution from light. <sup>240,241</sup>
Fluorouracil	X				Protect from light. <sup>242</sup> Some manufacturers recommend retaining in carton until time of use. <sup>3,242</sup> Exposure to sunlight or intense incandescent light has caused degradation. <sup>3</sup>
Fluphenazine decanoate	X				Keep in outer carton to protect from light. <sup>243</sup>
Fluphenazine hydrochloride	X				Protect from light. <sup>244</sup>
<b>Folic acid</b>	X				Protect from light. <sup>245</sup> Retain in carton until contents are used.
Follitropin alfa Gonal-f Gonal-f RFF	X				Protect from light. <sup>246,247</sup>
Follitropin beta Follistim AQ	X				Protect from light. <sup>248</sup>
Fosdenopterin hydrobromide Nulibry	X				Store in the original carton to protect from light. <sup>249</sup>
Fosnetupitant chloride hydrochloride and palonosetron hydrochloride Akynzeo	X				Store in carton to protect from light. <sup>250</sup>

(continued)



Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Fremanezumab-vfrm <i>Ajoovy</i>	X				Store in the original outer carton to protect from light. <sup>251</sup> Do not expose to direct sunlight.
Fulvestrant <i>Faslodex</i>	X				Store in the original carton to protect from light until time of use. <sup>252</sup>
<b>Furosemide</b>	X		X		Protect from light. <sup>253</sup> Photodegradation is minimized at pH 7 and occurs at a higher rate at more acidic or basic pH. <sup>3</sup> Exposure to light may cause discoloration. Stability of diluted solutions is affected by light exposure; refer to tertiary sources for details regarding storage after dilution.
Gadodiamide <i>Omniscan</i>	X				Protect from strong daylight and direct exposure to sunlight. <sup>254</sup>
Gadoteridol <i>ProHance</i>	X				Protect from light. <sup>255</sup>
Galcanezumab-gnlm <i>Emgality</i>	X				Store in the original carton to protect from light until use. <sup>256</sup> Protect from direct sunlight.
Galsulfase <i>Naglazyme</i>	X				Protect from light. <sup>257</sup>
Ganirelix acetate <i>Fyremadel</i>	X				Protect from light. <sup>258</sup>
Gemtuzumab ozogamicin <i>Mylotarg</i>	X	X	X	X	Store in the original carton to protect from light. <sup>259</sup> Protect the reconstituted and diluted solution from light in all concentrations. <sup>4,259</sup> Protect the intravenous bag from light using a light-blocking cover during infusion. <sup>259</sup> The infusion line does not need to be protected from light.
Glatiramer acetate <i>Copaxone</i> <i>Glatopa</i>	X				Protect from light. <sup>260,261</sup> Avoid exposure to intense light.
<b>Glucagon</b> <i>GlucaGen</i> <i>Gvoke</i>	X				Keep in original package to protect from light. <sup>262,263</sup>
Golimimumab <i>Simponi</i> <i>Simponi Aria</i>	X				Store in the original carton to protect from light until time of use. <sup>264,265</sup>
Golodirsen <i>Vyondys</i>	X				Store in original carton until ready for use to protect from light. <sup>266</sup>
Granisetron <i>Sustol</i>	X				All formulations: Protect from light. <sup>267</sup> Generic immediate-release injection: Retain in carton until time of use to protect from light. <sup>268</sup>
Guselkumab <i>Tremfya</i>	X				Store in original carton until time of use to protect from light. <sup>269</sup>
Haemophilus influenzae type B conjugate vaccine <sup>b</sup> <i>Hiberix</i>	X				Protect from light. <sup>270</sup>
Haloperidol decanoate <i>Haldol Decanoate</i>	X				Protect from light. <sup>271</sup>
<b>Haloperidol lactate</b>	X				Keep in outer carton to protect from light. <sup>272</sup>
Histamine skin test control <i>Histatrol</i>	X				Protect from light. <sup>273</sup>
<b>Human papillomavirus vaccine</b> <i>Gardasil 9</i>	X				Protect from light. <sup>274</sup>
<b>Hyaluronidase<sup>b</sup></b> <i>Vitrase</i>	X				Protect from light. <sup>275</sup>
<b>Hydrocortisone sodium succinate</b> <i>Solu-Cortef</i>		X			Protect reconstituted solution from light. <sup>276</sup>
<b>Hydromorphone hydrochloride</b> <i>Dilaudid</i>	X				Protect from light. <sup>277</sup> All generic formulations (ampule, vial, carpject, prefilled syringe) also require protection from light.
Hydroxocobalamin	X				Protect from light. <sup>278</sup>
Hydroxyprogesterone caproate <i>Makena</i>	X				Keep in carton until time of use to protect from light. <sup>279</sup>
<b>Hydroxyzine hydrochloride</b>	X				Protect from light. <sup>280</sup>
Ibalizumab-uiyk <i>Trogarzo</i>	X				Store in original carton to protect from light before use. <sup>4,281</sup>
Ibuprofen lysine <i>NeoProfen</i>	X				Protect from light. <sup>282</sup> Store vials in carton until contents have been used.
Idarubicin hydrochloride <i>Idamycin PFS</i>	X				Protect from light. <sup>283</sup> Retain in carton until time of use.

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Idarucizumab <i>Praxbind</i>	X				Store in the original carton to protect from light. <sup>284</sup> Unopened vials may be stored at room temperature for up to 48 h in the original carton or for up to 6 h if exposed to light.
Idursulfase <i>Elaprase</i>	X				Store in carton to protect from light. <sup>285</sup>
Imipenem, cilastatin sodium, and relebactam <i>Recarbrio</i>	X				Keep vials in the carton to protect from light. <sup>286,287</sup>
Immune globulin, human, and hyaluronidase <i>Hyqvia</i>	X				Keep in the carton in order to protect from light. <sup>288</sup>
Immune globulin, human <sup>b</sup> <i>Cutaquig</i> <i>Cuvitru</i> <i>Flebogamma DIF</i> <i>Gammagard Liquid</i> <i>Gammaked</i> <i>Gammaplex</i> <i>Gamunex-C</i> <i>Hizentra</i> <i>Octagam</i> <i>Panzyga</i> <i>Privigen</i>	X				<i>Cutaquig, Cuvitru, Flebogamma DIF, Gammaplex, Gammagard Liquid, Gammaked, Gamunex-C, Hizentra, Privigen</i> : Keep in original carton to protect from light. <sup>289-297</sup> <i>Octagam, Panzyga</i> : Store protected from light. <sup>298,299</sup>
Indigotindisulfonate <i>Bludigo</i>	X				Store in original carton to protect from light. <sup>300</sup>
Indomethacin sodium	X				Protect from light. <sup>301</sup> Store container in carton until contents have been used.
Inebilizumab-cdon <i>Uplizna</i>	X				Store in the original carton to protect from light. <sup>302</sup>
Infliximab and biosimilars <sup>b</sup> <i>Avsola (infliximab-axxq)</i> <i>Inflectra (infliximab-dyyb)</i> <i>Remicade</i>	X	X	X		<i>Avsola</i> : Protect from light. <sup>303</sup> <i>Avsola, Inflectra, Remicade</i> : Stability of reconstituted or diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3,303-305</sup>
Influenza quadrivalent vaccine, inactivated, 2021-2022 season <sup>b</sup> <i>Afluria</i> <i>Fluad</i> <i>Fluarix</i> <i>Flublok</i> <i>Flucelvax</i> <i>Flulaval</i>	X				<i>Afluria, Fluad, Flublok, Flucelvax</i> : Protect from light. <sup>306-310</sup> <i>Fluarix, Flulaval</i> : Store in the original carton to protect from light. <sup>311,312</sup>
Inotersen sodium <i>Tegsedi</i>	X				Store in the original container and protect from direct light. <sup>313</sup>
Inotuzumab ozogamicin <i>Besponsa</i>	X	X	X	X	Store in the original carton to protect from light. <sup>314</sup> Protect reconstituted and diluted solutions of all concentrations from light. <sup>4,314</sup> Refer to prescribing information for details regarding storage after reconstitution or dilution.
Insulin aspart <i>Fiasp</i> <i>Novolog</i>	X				Do not expose to light. <sup>315,316</sup> Keep in the original packaging (including the pen cap) to protect from light.
Insulin aspart and protamine <i>Novolog Mix 70/30</i>	X				Protect from light. <sup>317</sup>
Insulin degludec <i>Tresiba</i>	X				<i>Vial</i> : Store in the original carton to protect from light, both before and during use. <sup>318</sup> <i>Pen</i> : While in use, keep away from light. <sup>318</sup>
Insulin degludec and liraglutide <i>Xultophy</i>	X				Store in the carton to protect from light before use. <sup>319</sup> While in use, keep away from direct light.
Insulin detemir <i>Levemir</i>	X				Store in the carton to protect from light. <sup>320</sup>
Insulin glargine <i>Basaglar</i> <i>Lantus</i> <i>Lantus SoloStar</i> <i>Toujeo</i> <i>Toujeo Max</i>	X				Protect from light, both before and during use. <sup>321-323</sup>
Insulin glargine and lixisenatide <i>Soliqua</i>	X				Protect from light, both before and during use. <sup>324</sup> Replace the pen cap after each use to protect from light.
Insulin glargine-aglr <i>Rezvoglar</i>	X				Protect from light. <sup>325</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Insulin glargine-yfgh <i>Semglee</i>	X				Protect from light, both before and during use. <sup>326</sup>
Insulin glulisine <i>Apidra</i> <i>Apidra SoloStar</i>	X				Protect from light, both before and during use. <sup>327</sup>
Insulin isophane (NPH) and regular insulin <i>Humulin 70/30</i> <i>Novolin 70/30</i>	X				Protect from light, both before and during use. <sup>328,329</sup>
Insulin lispro <i>Admelog</i> <i>Humalog</i>	X				Protect from light, both before and during use. <sup>330,331</sup>
Insulin lispro and protamine <i>Humalog Mix 50/50</i> <i>Humalog Mix 75/25</i>	X				Protect from light. <sup>332,333</sup> Before and during use, keep vials away from direct light. <sup>334</sup>
Insulin lispro-aabc <i>Lyumjev</i>	X				Keep in the original carton to protect from light, both before and during use. <sup>335</sup>
Insulin regular <i>Humulin R</i> <i>Humulin R U-500</i> <i>Myxredlin</i> <i>Novolin R</i>	X				<i>All products:</i> Regular insulin should not be exposed to direct sunlight. <sup>336-338</sup> <i>Humulin R, Humulin R U-500:</i> Protect from light, both before and during use. <sup>336</sup> <i>Myxredlin:</i> Store in the original carton while refrigerated to protect from light. <sup>337</sup> <i>Novolin R:</i> Do not expose to light. <sup>338</sup>
Interferon beta-1a <i>Avonex</i> <i>Rebif</i>	X				<i>Avonex</i> prefilled syringes and autoinjectors: Store in the original carton to protect from light. <sup>339</sup> <i>Rebif</i> prefilled syringes and autoinjectors: Store away from light. <sup>340</sup>
Iodixanol <i>Visipaque</i>	X				Protect from direct exposure to sunlight. <sup>341</sup>
Iohexol <i>Omnipaque</i>	X				Protect from light. <sup>342</sup>
Iopamidol <i>Isovue</i> <i>Isovue-M</i>	X				Protect from light. <sup>343,344</sup>
Iopramide <i>Ultravist</i>	X				Protect from light. <sup>345</sup>
Iothalamate meglumine <i>Conray</i> <i>Cysto-Conray II</i>	X				Protect from strong daylight or direct exposure to the sun. <sup>346,347</sup>
Ioversol <i>Optiray</i>	X				Protect from strong daylight or direct exposure to the sun. <sup>348</sup>
Ipilimumab <i>Yervoy</i>	X				Protect from light by storing in the original carton until time of use. <sup>349</sup>
Irinotecan hydrochloride <i>Camptosar</i>	X		X		Protect from light. <sup>350</sup> Keep vial in the carton until the time of use. Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3</sup>
Irinotecan hydrochloride, liposomal <i>Onivyde</i>	X		X		Protect from light. <sup>351</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Isatuximab-irfc <i>Sardisa</i>	X				Store in the original carton to protect from light. <sup>352</sup>
Isoniazid	X				Protect from light. <sup>353</sup> Isoniazid is slowly affected by exposure to air and light.
Isoproterenol hydrochloride <i>Isuprel</i>	X		X		Protect from light. <sup>354</sup> Keep in opaque container until used. Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3</sup>
Ixabepilone <i>Ixempra</i>	X	X	X		Store in the original package until time of use to protect from light. <sup>355</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Ixekizumab <i>Taltz</i>	X				Store in the original carton to protect from light. <sup>356</sup>
Japanese encephalitis virus vaccine <i>Ixiaro</i>	X				Store in the original package to protect from light. <sup>357</sup>
Ketamine hydrochloride <i>Ketalar</i>	X				Protect from light. <sup>358</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Ketorolac tromethamine	X				Protect from light. <sup>359</sup> Retain in carton until time of use. Prolonged exposure to light may result in discoloration of the solution and precipitation. <sup>3</sup>
Labetalol hydrochloride	X				Protect from light. <sup>360</sup> Retain in carton until time of use. <i>Premixed solution:</i> Do not remove from overwrap until ready to use. <sup>361</sup>
Lanadelumab-flyo <i>Takhzyro</i>	X				Keep in the original carton to protect from light. <sup>362</sup>
Lanreotide acetate <i>Somatuline Depot</i>	X				Protect from light. <sup>363</sup> Store in the original package.
Laronidase <i>Aldurazyme</i>	X				Protect from light. <sup>364</sup>
Letermovir <i>Prevymis</i>	X				Store in the original carton to protect from exposure to light. <sup>365</sup>
Leucovorin calcium	X				Protect from light. <sup>366,367</sup> Retain in carton until time of use.
Leuprolide acetate <sup>b</sup> <i>Camcevi</i>	X				Protect from light; store vial in carton until use. <sup>368</sup> Store prefilled syringe in the original package until use. <sup>369</sup>
Levocarnitine <sup>b</sup>	X				Store in original carton to protect from light. <sup>370</sup> <i>Carnitor</i> does not require protection from light.
Levofloxacin	X		X		Protect from light. <sup>371,372</sup> Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3</sup>
Levoleucovorin calcium <i>Fusilev</i> <i>Khapzory</i>	X	X	X		<i>All products:</i> Protect from light. <sup>373,374</sup> Store in carton until contents are used. <i>Khapzory:</i> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. <sup>374</sup>
Levothyroxine sodium	X				Protect from light in the original vial in a carton. <sup>375,376</sup> The unopened vial may be stored for up to 24h exposed to indoor lighting outside of the carton.
Lidocaine hydrochloride <sup>b</sup> <i>Xylocaine</i> <i>Xylocaine MPF</i>	X				Protect from light. <sup>377</sup>
Lidocaine hydrochloride and epinephrine <i>Xylocaine with Epi</i> <i>Xylocaine MPF with Epi</i>	X				Protect from light. <sup>378</sup>
Linezolid <i>Zyvox</i>	X		X		<i>Premixed bags:</i> Protect from light. <sup>379</sup> Keep infusion bags in the overwrap until ready to use. Duration of stability after removal from overwrap is affected by exposure to light. <sup>380</sup> <i>All products:</i> Protect from excessive sunlight. <sup>381,382</sup> <i>Saxenda:</i> Put the pen cap on after each use to protect from light. <sup>381</sup>
Liraglutide <i>Saxenda</i> <i>Victoza</i>	X				Put the pen cap on after each use to protect from light. <sup>381</sup>
Lixisenatide <i>Adlyxin</i>	X				Keep in the original package to protect from light. <sup>383</sup> Replace the pen cap after each use to protect from light.
Lonapegsomatropin-tcgd <i>Skytrofa</i>	X				Store in the outer carton to protect from light. <sup>384</sup>
Loncastuximab terisine-lypl <i>Zynlonta</i>	X	X			Store in the original carton to protect from light. <sup>385</sup> Do not expose the reconstituted solution to direct sunlight.
Lorazepam <i>Ativan</i>	X				Use carton to protect contents from light. <sup>386</sup>
Luspatercept-aamt <i>Reblozyl</i>	X				Store in the original carton to protect from light. <sup>387</sup>
Margetuximab-cmbk <i>Margenza</i>	X				Store in the original carton to protect from light until time of use. <sup>388</sup>
Measles, mumps, and rubella vaccine <i>MMR II</i>	X	X			Exposure to light may inactivate vaccine viruses. <sup>389</sup> Protect reconstituted solution from light.
Measles, mumps, rubella, and varicella vaccine <i>Proquad</i>	X	X			Protect reconstituted solution from light. <sup>390</sup> Protect from light at all times since exposure to light may inactivate vaccine viruses.
Meloxicam <i>Anjeso</i>	X				Protect from light. <sup>391</sup>
Melphalan hydrochloride <i>Evomela</i>	X				Light sensitive. <sup>392</sup> Retain in original carton until use.
Meningococcal conjugate vaccine <sup>b</sup> <i>Menveo</i>	X				Protect from light. <sup>393</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Menotropins <i>Menopur</i>	X				Protect from light. <sup>394</sup>
Mepivacaine hydrochloride <sup>b</sup> <i>Carbocaine 2% with Neo-Cobefrin 1:20,000</i> <i>Carbocaine 3%</i> <i>Polocaine Dental 2% with Neo-Cobefrin 1:20,000</i> <i>Polocaine Dental 3%</i>	X				Protect from light. <sup>395,396</sup> Retain in box until time of use. Once opened, the box should be reclosed by closing the top flap. Non-dental formulations (eg, <i>Carbocaine 1%-2%</i> and <i>Polocaine 1%-2%</i> ) do not require protection from light.
Mepolizumab <i>Nucala</i>	X				Store in the original carton to protect from light. <sup>397</sup> <i>Prefilled autoinjector, prefilled syringe:</i> Must be administered within 8 h of being taken out of the carton. <sup>397</sup> Keep away from direct sunlight.
<b>Meropenem<sup>b</sup></b>	X				Protect dual-chamber formulations from light after removal of foil strip. <sup>398</sup> <i>Merrem</i> does not require protection from light.
Mescasermin <i>Increlex</i>	X				Protect from direct light. <sup>399</sup>
Methadone hydrochloride	X				Protect from light. <sup>400</sup> Store in carton until contents have been used.
<b>Methotrexate</b> <i>Otrexup</i> <i>Rasuvo</i>	X		X		Protect from light. <sup>401-404</sup> Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3</sup>
Methoxy polyethylene glycol-epoetin beta <i>Mircera</i>	X				Store in the original carton to protect from light. <sup>405</sup> Prolonged exposure to light should be avoided.
<b>Methylene blue</b> <i>ProvayBlue</i>	X				Store in the original package to protect from light. <sup>406</sup>
<b>Methylgonovine maleate</b> <i>Methergine</i>	X				Protect from light. <sup>407</sup>
<b>Methylnaltrexone bromide</b> <i>Relistor</i>	X				<i>Vials and syringes:</i> Protect from light. <sup>408</sup>
<b>Methylprednisolone sodium succinate</b> <i>Solu-Medrol</i>	X				Protect from light. <sup>409</sup>
<b>Metoclopramide hydrochloride</b>	X		X		Protect from light. <sup>410</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
<b>Metoprolol tartrate</b>	X				Protect from light. <sup>411</sup> Retain in carton until time of use.
Metreleptin <i>Myalept</i>	X	X			Protect from light. <sup>412</sup> Keep vials in the carton when not in use. Reconstituted vial (with bacteriostatic water for injection) can be used for multiple doses within 3 d if protected from light.
<b>Metronidazole</b>	X				Protect from light. <sup>413</sup> Direct sunlight should be avoided. <sup>3</sup>
<b>Micafungin sodium</b> <i>Mycamine</i>	X	X	X		Protect from light. <sup>414</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. It is not necessary to cover the infusion drip chamber or the tubing.
Midazolam hydrochloride <sup>b</sup>	X				<i>Vial:</i> Some generic manufacturers require protection from light during storage. <sup>415</sup> Refer to the prescribing information for product-specific details on protection from light.
Mitomycin <i>Jelmyto</i> <i>Mitosol</i>	X	X			Protect from light. <sup>416-418</sup> Protect reconstituted solution from light.
Mogamulizumab-kpkc <i>Poteligeo</i>	X				Store in original package to protect from light until time of use. <sup>419</sup>
<b>Morphine sulfate</b> <i>Duramorph PF</i> <i>Infumorph</i> <i>Mitigo</i>	X		X		Protect from light. <sup>420-422</sup> Keep stored in carton until time of use. Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. <sup>3</sup>
Moxetumomab padusotox-tdfk <i>Lumoxiti</i>	X		X	X	Store the drug and IV solution stabilizer in the original carton to protect from light. <sup>423</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution. Protect from light during administration. <sup>4,423</sup>
<b>Nalbuphine hydrochloride</b>	X				Protect from light. <sup>424</sup> Store in the carton until contents have been used.
<b>Naloxone hydrochloride</b> <i>Zimhi</i>	X				Store in the outer case provided to protect from light. <sup>425,426</sup>

(continued)

Table 1. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Natalizumab <i>Tysabri</i>	X				Protect from light. <sup>427</sup>
Naxitamab-gqgk <i>Danyelza</i>	X				Store in the outer carton to protect from light until time of use. <sup>428</sup>
Necitumumab <i>Portrazza</i>	X				Keep in the outer carton to protect from light. <sup>429</sup>
Neostigmine methylsulfate <i>Bloxiverz</i>	X				Protect from light. Store in carton until time of use. <sup>430</sup>
Nicardipine hydrochloride <i>Cardene I.V.</i>	X				Store in the carton to protect from light until ready to use. <sup>431</sup> <i>Premixed bag:</i> Protect from light until ready to use. <sup>432</sup>
Nitroglycerin	X				Protect from light. <sup>433,434</sup> Retain in carton until time of use. The premixed solutions should be protected from light until time of use. <sup>3</sup> Although light protection is recommended by manufacturers, exposure to light, even high intensity light, does not adversely affect nitroglycerin stability.
Nivolumab <i>Opdivo</i>	X		X		Protect from light by storing in the original package until time of use. <sup>435</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Nivolumab and relatlimab-rmbw <i>Opdualag</i>	X		X		Store in the original carton to protect from light until time of use. <sup>436</sup> Stability of the diluted solution is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Norepinephrine bitartrate <i>Levophed</i>	X		X		Store in the original carton until time of administration to protect from light. <sup>437,438</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution. <i>Premixed solution:</i> Protect from light. <sup>438</sup> Keep in overwrap until ready to use.
Nusinersen sodium <i>Spinraza</i>	X				Store in the original carton to protect from light. <sup>439</sup>
Obiltoximab <i>Anthim</i>	X				Keep vials in their cartons prior to preparation of an infusion solution to protect from light. <sup>440</sup>
Obinutuzumab <i>Gazyva</i>	X				Protect from light. <sup>441</sup>
Ocrelizumab <i>Ocrevus</i>	X				Store in the outer carton to protect from light. <sup>442</sup>
Octreotide acetate <i>Sandostatin</i> <i>Sandostatin LAR</i>	X				<i>Sandostatin:</i> Store in the outer carton to protect from light. <sup>443</sup> <i>Sandostatin LAR:</i> Protect from light until the time of use. <sup>444</sup>
Ofatumumab <i>Arzerra</i> <i>Kesimpta</i>	X				<i>Arzerra:</i> Protect from light. <sup>445</sup> <i>Kesimpta:</i> Keep the product in the original carton to protect from light until the time of use. <sup>446</sup>
Olanzapine <i>Zyprexa IntraMuscular</i>	X				Protect from light. <sup>447</sup>
Olanzapine pamoate <i>Zyprexa Relprev</i>	X				Keep away from sunlight. <sup>448</sup>
Oliceridine <i>Olinvyk</i>	X				Protect from light. <sup>449</sup>
Omacetaxine mepesuccinate <i>Synribo</i>	X				Prior to reconstitution, keep product in carton to protect from light. <sup>450</sup>
Omalizumab <i>Xolair</i>	X	X			Store in original carton to protect from direct sunlight. <sup>451</sup> Reconstituted vials should be protected from sunlight.
Ondansetron hydrochloride	X				Retain in carton until time of use. <sup>452</sup> Protect from light.
Orphenadrine citrate	X				Protect from light. <sup>453</sup>
Oxaliplatin <sup>b</sup>	X				Protect the concentrated solution from light. <sup>454</sup> Keep in original outer carton. Lyophilized powder does not require protection from light. <sup>455</sup>
Paclitaxel <i>Abraxane</i>	X	X	X		<i>All products:</i> Retain in the original package to protect from bright light. <sup>456,457</sup> <i>Abraxane:</i> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. <sup>456</sup>
Pafolacianine <i>Cytalux</i>	X		X	X	Store in original carton to protect from light. <sup>458</sup> Protect the infusion bag from light using a light-blocking cover during infusion and storage.
Palifermin <i>Kepivance</i>	X	X			Store in the dispensing pack in the carton. <sup>459</sup> Protect from light. Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution. <sup>4,459</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Palonosetron	X				Protect from light. <sup>460</sup>
Panitumumab Vectibix	X				Store in the original carton until time of use. <sup>461</sup> Protect from direct sunlight.
Pantoprazole sodium Protonix I.V.	X				Protect vials from light; use of vial carton is recommended. <sup>462</sup>
Papaverine	X				Protect from light. <sup>463</sup> Retain in carton until time of use.
Parathyroid hormone Natpara	X				Prior to reconstitution, the dual-chamber medication cartridge should be stored in the package provided. <sup>464</sup> Store away from light.
Pasireotide diaspertate Signifor	X				Protect from light. <sup>465</sup> Pasireotide pamoate (Signifor LAR) does not require protection from light.
Pegaspargase Oncaspar	X		X		Store in the original carton to protect from light. <sup>466</sup> Protect infusion bag from direct sunlight.
Pegcetacoplan Empaveli	X				Keep the vial in the carton until ready for use to protect from light. <sup>467</sup>
Pegfilgrastim and biosimilars Fulphila (pegfilgrastim-jmdb) Fynetra (pegfilgrastim-pbbk) Neulasta, Neulasta Onpro Nyvepria (pegfilgrastim-apgf) Udenyca (pegfilgrastim-cbqv) Ziextenzo (pegfilgrastim-bmez)	X			X	Keep the prefilled syringe in the original carton to protect from light. <sup>468-473</sup> Do not leave the prefilled syringes in direct sunlight.
Peginterferon alfa-2a Pegasys	X				Vial, prefilled syringe: Protect from light. <sup>474</sup>
Peginterferon beta-1a Plegridy	X				Store in the closed original carton to protect from light until ready for injection. <sup>475</sup>
Pegloticase Krystexxa	X		X		Protect from light. <sup>476</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Pegvaliase-pqz Palyngiq	X				Store in original carton to protect from light. <sup>477</sup>
Pembrolizumab Keytruda	X				Store in original carton to protect from light. <sup>478</sup>
Pemetrexed disodium <sup>b</sup>	X				Solution for injection: Some generic manufacturers require protection from light during storage. <sup>479</sup> Refer to the prescribing information for product-specific details on protection from light.
Pentamidine isethionate Pentam	X	X			Protect from light. <sup>480</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
Peritoneal dialysis solutions Dianeal Low Calcium Dianeal PD-2 Extraneal	X				Store in moisture barrier overwrap and in carton until ready to use. <sup>481,482</sup> Storing in the carton prevents direct sun rays from falling into the transparent solution and container, which may potentially form glucose degradation products and reduce the effectiveness of the solution. <sup>483</sup>
Pertuzumab Perjeta	X				Keep vial in the outer carton in order to protect from light. <sup>484</sup>
Pertuzumab, trastuzumab, and hyaluronidase-zzxf Phesgo	X				Store in the original carton to protect from light. <sup>485</sup>
Phentolamine mesylate <sup>b</sup> Oraverse	X				Protect from direct heat and light. <sup>486</sup>
Phenylephrine hydrochloride and ketorolac tromethamine Omidria	X				Protect from light. <sup>487</sup>
Phenylephrine hydrochloride <sup>b</sup> Vazculep	X				Protect from light. <sup>488</sup> Store in carton until time of use.
Phytonadione	X		X	X	Protect from light at all times. <sup>489</sup> Store container in closed original carton until contents have been used.
Polatuzumab vedotin-piiq Polivy	X				Store in original carton to protect from light. <sup>490</sup>
Polidocanol <sup>b</sup> Varithena	X				Store the canisters away from sources of heat including strong light conditions. <sup>491</sup>
Poliovirus vaccine, inactivated IPOP	X				Protect from light. <sup>492</sup>
Polymyxin B sulfate	X				Store in the original carton to protect from light. <sup>493</sup>
Porfimer sodium Photofrin	X	X			Store unopened vials in original carton to protect from light. <sup>4</sup> Reconstituted product should be protected from bright light. <sup>494</sup>
Potassium phosphates, monobasic and dibasic			X		Protect the parenteral nutrition solution from light during storage. <sup>495</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
PrabotulinumtoxinA-xvfs <i>Jeveau</i>	X	X			Store in the original carton to protect from light. <sup>496</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
Pralatrexate <i>Foloty</i>	X				Store in original carton to protect from light. <sup>497</sup>
Pramlintide acetate <i>Symlin</i>	X				Protect from light. <sup>498</sup>
Prilocaine hydrochloride and epinephrine bitartrate <i>Citanest Forte Dental</i>	X				Protect from light. <sup>499</sup>
Prochlorperazine edisylate	X				Protect from light. <sup>500</sup> Store in the original carton until ready to use.
Promethazine <i>Phenergan</i>	X				Keep covered in carton until time of use to protect from light. <sup>501</sup>
Propranolol hydrochloride	X				Protect from light. <sup>502</sup>
Protein C concentrate, human <i>Ceprotin</i>	X				Store in the original carton to protect it from light. <sup>503</sup>
Pyridostigmine bromide <i>Regonol</i>	X				Protect from light. <sup>504</sup>
Pyridoxine hydrochloride	X				Protect from light. <sup>505</sup>
Rabies vaccine <sup>b</sup> <i>RabAvert</i>	X				Protect from light. <sup>506</sup>
Ramucirumab <i>Cyramza</i>	X				Store in the original carton to protect from light until time of use. <sup>507</sup>
Ranibizumab and biosimilars <i>Byooviz (ranibizumab-nuna)</i> <i>Lucentis</i> <i>Susvimo</i>	X				Protect prefilled syringes and vials from light and store in the original carton until time of use. <sup>508-510</sup>
Rasburicase <i>Elitek</i>	X				Protect from light. <sup>511</sup>
Ravulizumab-cwvz <i>Ultomiris</i>	X		X		Store in the original carton to protect from light. <sup>512</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Raxibacumab	X				Keep vials in their cartons prior to preparation of an infusion solution to protect from light. <sup>513</sup>
Remimazolam besylate <i>Byfavo</i>	X				Protect vials from light once they are removed from packaging. <sup>514</sup>
Reslizumab <i>Cinqair</i>	X		X		Protect vials from light by storing in the original package until time of use. <sup>515</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Reteplase <i>Retavase</i>	X				Boxes should remain sealed until time of use to protect the lyophilisate from exposure to light. <sup>516</sup>
Rho(D) immune globulin <sup>b</sup> <i>Rhophylac</i> <i>WinRho SDF</i>	X				<i>Rhophylac</i> : Keep in the original carton to protect from light. <sup>517</sup> <i>WinRho SDF</i> : Protect from light. <sup>518</sup>
Rifampin <i>Rifadin</i>	X				Protect from light. <sup>519</sup>
Rilonacept <i>Arcalyst</i>	X	X			Store in the original carton to protect from light. <sup>520</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
RimabotulinumtoxinB <i>Myobloc</i>	X				Store in the original carton to protect from light. <sup>521</sup>
Risankizumab-rzaa <i>Skyrizi</i>	X		X		Keep in the original cartons to protect from light. <sup>522</sup> <i>Prefilled cartridge and prefilled pen</i> : Prior to administration, allow to sit at room temperature for up to 90 min protected from direct sunlight. <sup>522</sup> <i>Vial</i> : stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution. <sup>522</sup>
Risperidone <sup>b</sup> <i>Risperdal Consta</i>	X				The entire dose pack should be protected from light. <sup>523</sup>
Rituximab and biosimilars <i>Riabni (rituximab-arx)</i> <i>Rituxan</i> <i>Ruxience (rituximab-pvvr)</i> <i>Truxima (rituximab-abbs)</i>	X		X		<i>All products</i> : vials should be protected from direct sunlight. <sup>524-527</sup> <i>Riabni</i> : stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution. <sup>524</sup>
Rituximab and hyaluronidase <i>Rituxan Hycela</i>	X				Store in the original carton to protect from light. <sup>528</sup>
Romidepsin	X				Store in the carton to protect from light. <sup>529</sup>

(continued)



Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Romiplostim <i>Nplate</i>	X	X	X		Store in the original carton to protect from light. <sup>530</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Romozumab-aqqg <i>Evenity</i>	X				Store in the original carton to protect from light. <sup>531</sup>
Ropeginterferon alfa-2b <i>Besremi</i>	X				Store in the original carton to protect from light. <sup>532</sup>
Sacituzumab govitecan-hziy <i>Trodelvy</i>	X		X	X	Store in the original carton to protect from light until time of reconstitution. <sup>533</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution. Protect infusion bag from light. The infusion bag should be covered during administration to the patient until dosing is complete. It is not necessary to cover the infusion tubing or to use light-protective tubing during the infusion.
Sargramostim <i>Leukine</i>	X				Store in the original carton to protect from light. <sup>534</sup>
Sarilumab <i>Kevzara</i>	X				Store in the original carton to protect from light. <sup>535</sup>
Satralizumab-mwge <i>Enspryng</i>	X				Store in the original carton to protect from light. <sup>536</sup>
Sebelipase alfa <i>Kanuma</i>	X		X		Store in the original carton to protect from light. <sup>537</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Secretin, human <i>ChiRhoStim</i>	X				Protect from light. <sup>538</sup>
Secukinumab <i>Cosentyx</i>	X				Store in the original carton to protect from light. <sup>539</sup>
Selenious acid			X		Protect the admixed parenteral nutrition solution from light. <sup>540</sup>
Selexipag <i>Uptravi</i>	X	X	X	X	Protect from light at all times. <sup>541</sup> Store in the original carton until use in order to protect from light. Stability of reconstituted and diluted solutions is affected by light exposure. During reconstitution, ensure the protective wrap around label is covering the entire vial. After dilution, wrap the glass container completely with light protective cover. Refer to prescribing information for details regarding storage after reconstitution or dilution.
<b>Semaglutide</b> <i>Ozempic</i> <i>Wegovy</i>	X				<i>Ozempic</i> : Keep the pen cap on when not in use. Protect from excessive sunlight. <sup>542</sup> <i>Wegovy</i> : Protect from light. Keep in original carton until time of administration. <sup>543</sup>
Setmelanotide acetate <i>Imcivree</i>	X				Store unopened and opened vials in the original carton to protect from light. <sup>544</sup>
Siltuximab <i>Sylvant</i>	X				Store in the original carton to protect from light. <sup>545</sup>
Sirolimus <i>Fyarro</i>	X				Store in the original package to protect from light. <sup>546</sup> Stability of the reconstituted suspension and the diluted suspension is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution and dilution.
Sodium hyaluronate and derivatives (ie, hyaluronic acid) <sup>b</sup> <i>Biolon</i> <i>Euflexxa</i> <i>Gelsyn-3</i> <i>GenVisc 850</i> <i>Healon Endocoat</i> <i>Healon GV Pro</i> <i>Healon Pro</i> <i>Healon5 Pro</i> <i>Hyalgan</i> <i>Provisc</i> <i>Restylane</i> <i>Restylane Contour</i> <i>Restylane Defyne</i> <i>Restylane Kysse</i> <i>Restylane Lyft with Lidocaine</i> <i>Restylane Refyne</i> <i>Restylane Silk</i> <i>Restylane-L</i> <i>Revanesse Lips</i> <i>Revanesse Versa</i> <i>Triluron</i> <i>Trivisc</i>	X				<i>Biolon</i> , <i>Euflexxa</i> , <i>Healon products</i> , <i>Provisc</i> : Protect from light. <sup>547-553</sup> <i>Gelsyn-3</i> : Protect from light by storing in the original packaging. <sup>554</sup> Use immediately after removal from the carton box. <i>GenVisc 850</i> , <i>Hyalgan</i> , <i>Triluron</i> , <i>Trivisc</i> : Protect from light by storing in the original packaging. <sup>555-558</sup> <i>Revanesse Lips</i> , <i>Revanesse Versa</i> : Protect from direct sunlight. <sup>559,560</sup> Do not use with a laser or intense pulsed light. <i>Restylane products</i> : Protect from sunlight. <sup>561-568</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Sodium nitrite	X				Protect from direct light. <sup>569</sup>
Sodium nitrite and sodium thiosulfate	X				Protect from direct light. <sup>570</sup>
<i>Nithiodote</i>					
Sodium nitroprusside <i>Nipride RTU</i>	X		X	X	Store in the carton until used to protect from light. <sup>571</sup> Stability of diluted solutions may be affected by light exposure; refer to tertiary resources for more details. Diluted solutions should be wrapped in an opaque sleeve; amber plastic bags do not provide sufficient protection against photodegradation. <sup>3,4</sup> Sources are conflicting regarding protection of tubing during administration.
Sodium thiosulfate	X				Protect from direct light. <sup>572</sup>
Somapacitan-beco <i>Sogroya</i>	X				Store pre-filled pen with the cap on in the original carton to protect from light. <sup>573</sup>
Somatropin <sup>b</sup> <i>Genotropin/Genotropin Miniquick</i> <i>Humatrope</i> <i>Norditropin</i> <i>Nutropin AQ Nuspin</i> <i>Omnitrope</i> <i>Saizen</i> <i>Zomacton</i>	X	X			<i>All products:</i> Protect from light. <sup>574-580</sup> <i>Humatrope:</i> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution. <sup>575</sup>
Sotalol hydrochloride	X				Protect from light. <sup>581</sup>
Streptomycin sulfate	X	X			Protect from light. <sup>582</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.
Streptozocin <i>Zanosar</i>	X				Store in the original carton to protect from light. <sup>583</sup>
Sufentanil citrate	X				Protect from light. <sup>584</sup>
Sugammadex sodium <i>Bridion</i>	X				Protect from light. <sup>585</sup> When not protected from light, the vial should be used within 5 d.
Sumatriptan succinate <i>Imitrex STATdose</i> <i>Zembrace SymTouch</i>	X				Protect from light. <sup>586,587</sup>
Sutimlimab-jome <i>Enjaymo</i>	X				Store in the original carton to protect from light. <sup>588</sup>
Tafasitamab-cxix <i>Monjuvi</i>	X	X	X		Store in the original carton to protect from light. <sup>589</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Tagraxofusp-erzs <i>Elzonris</i>	X				Store in the original carton to protect from light. <sup>590</sup>
Taliglucerase alfa <i>Elelyso</i>	X	X	X		Store in the original carton to protect from light. <sup>591</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Talimogene laherparepvec <i>Imlygic</i>	X				Store in the original carton to protect from light during storage and during and after thawing the product. <sup>592</sup>
Tebentafusp <i>Kimtrak</i>	X				Store in the original carton to protect from light until time of use. <sup>593</sup>
Technetium TC-99M Bicisate Kit <i>Neurolite</i>	X				Protect vial A from light. <sup>594</sup>
Technetium TC-99M mertiatide <sup>b</sup> <i>Technescan MAG3</i>	X				Protect from light. <sup>595</sup>
Technetium TC-99M tetrofosmin <i>Myoview</i>	X				Protect the kit from light. <sup>596</sup>
Temsirolimus <i>Torisel</i>	X	X	X		Protect from light. <sup>597</sup> Stability of reconstituted or diluted solutions is affected by excessive room light and sunlight; refer to prescribing information for details regarding storage after reconstitution or dilution.
Teniposide	X				Store in original package to protect from light. <sup>598</sup>
Teprotumumab-trbw <i>Tepezza</i>	X	X	X		Store in the original carton to protect from light. <sup>599</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Terbutaline sulfate	X				Store in the original carton to protect from light. <sup>600</sup>
Teriparatide <i>Forteo</i>	X				Recap the delivery device (pen) when not in use to protect from light. <sup>601</sup>

(continued)

Table I. (continued)

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Tesamorelin acetate <i>Egrifta SV</i>	X				Store in the original box to protect from light. <sup>602</sup>
Testosterone cypionate <i>Depo-Testosterone</i>	X				Protect from light. <sup>603</sup>
Testosterone enanthate <sup>b</sup> <i>Xyosted</i>	X				Store in the original carton to protect from light. <sup>604</sup>
Tetracaine hydrochloride	X				Protect from light. <sup>605</sup>
Tezepelumab-ekko <i>Tezspire</i>	X				Store in original carton to protect from light until time of use. <sup>606</sup>
Thiamine hydrochloride	X				Protect from light. <sup>607</sup>
Thiotepa <sup>b</sup>	X				Protect from light at all times. <sup>608</sup> <i>Tepadina</i> and certain generic manufacturers of thiotepa do not require protection from light. Other generic manufactures state to protect from light at all times. Refer to the prescribing information for product-specific details on protection from light.
Thyrotropin alfa <i>Thyrogen</i>	X				Store in the original carton to protect from light. <sup>609</sup>
Tildrakizumab-asmn <i>Ilumya</i>	X				Store in the original carton to protect from light. <sup>610</sup>
Tirofiban hydrochloride <i>Aggrastat</i>	X				Protect from light during storage. <sup>611</sup>
Tirzepatide <i>Mounjaro</i>	X				Store in the original carton to protect from light. <sup>612</sup>
Tisotumab vedotin-tftv <i>Tivdak</i>	X				Store in the original carton to protect from light. <sup>613</sup>
Tocilizumab <i>Actemra</i>	X		X		Protect the vials, syringes, and autoinjectors from light by storage in the original package until time of use. <sup>614</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Topotecan hydrochloride <i>Hycamtin</i>	X		X		All products: Store in the original carton to protect from light. <sup>615,616</sup> Powder for reconstitution: Reconstituted product diluted for infusion should be protected from light; refer to prescribing information for details regarding storage after dilution. <sup>615</sup>
Tralokinumab-ldrm <i>Adbry</i>	X				Store in the original carton to protect from light. <sup>617</sup> Do not expose to direct sunlight.
Trastuzumab and hyaluronidase- oysk <i>Herceptin Hylecta</i>	X				Store in the original carton to protect from light. <sup>618</sup> If the solution is drawn into a syringe and is not used immediately, then the syringe can be stored and should be protected from light; refer to prescribing information for details regarding storage.
Trastuzumab biosimilars <sup>b</sup> <i>Kanjinti (trastuzumab-anns)</i> <i>Trazimera (trastuzumab-qyyp)</i>	X				Store in the original carton to protect from light. <sup>619,620</sup>
fam-Trastuzumab deruxtecan- nxki <i>Enhertu</i>	X	X	X	X	Store in the original carton to protect from light until reconstitution. <sup>621</sup> If not used immediately, store the reconstituted vials protected from light. Cover the infusion bag to protect from light. Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
Triamcinolone acetone, intravitreal <i>Triesence</i>	X				Store in the original carton to protect from light. <sup>622</sup>
Triamcinolone acetone, suprachoroidal <i>Xipere</i>	X				Store in the carton to protect from light. <sup>623</sup>
Triamcinolone acetone <sup>b</sup> <i>Kenalog-10</i> <i>Kenalog-40</i> <i>Kenalog-80</i>	X				Store in the original carton to protect from light. <sup>624-626</sup>
Trypan blue <i>VisionBlue</i>	X				Protect from direct sunlight. <sup>627</sup>
Tuberculin skin test <i>Aplisol</i> <i>Tubersol</i>	X				Protect from light. <sup>628,629</sup>
Ustekinumab <i>Stelara</i>	X				Keep the product in the original carton to protect from light until the time of use. <sup>630</sup>
Varicella virus vaccine, live <i>Varivax</i>	X				Protect from light. <sup>631</sup>

(continued)

**Table 1. (continued)**

Drug	Storage	Reconstitution	Dilution	Administration	Additional comments
Varicella zoster vaccine, live attenuated <i>Shingrix</i> <i>Zostavax</i>	X				Protect from light. <sup>632,633</sup>
<b>Vecuronium bromide</b>	X				Store in the original carton to protect from light. <sup>634</sup>
Vedolizumab <i>Entyvio</i>	X				Store in the original carton to protect from light. <sup>635</sup>
Velaglucerase alfa <i>Vpriv</i>	X	X	X		Store in the original carton to protect from light. <sup>636</sup> Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution.
<b>Verapamil hydrochloride</b>	X		X		Store in the original carton to protect from light. <sup>637</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Verteporfin <i>Visudyne</i>		X	X		Stability of reconstituted and diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution or dilution. <sup>638</sup>
Vestronidase alfa-vjvk <i>Mepsevii</i>	X				Protect from light. <sup>639</sup>
Vinblastine sulfate	X				Store in the original carton to protect from light. <sup>640</sup>
Vincristine sulfate	X		X		Protect from light. <sup>641</sup> Stability of diluted solutions is affected by light exposure; refer to prescribing information for details regarding storage after dilution.
Vinorelbine tartrate	X				Store in the original carton to protect from light. <sup>642</sup>
Vitamin A palmitate <i>Aquasol A</i>	X				Protect from light. <sup>643</sup>
<b>Von Willebrand factor/ coagulation factor VIII complex</b> <i>Wilate</i>	X				Store in the original carton to protect from light. <sup>644</sup>
Vosoritide <i>Voxzogo</i>	X				Store in the original package to protect from light. <sup>645</sup>
Ziconotide acetate, intrathecal <i>Prialt</i>	X				Protect from light. <sup>646</sup>
<b>Zidovudine</b> <i>Retrovir</i>	X				Protect from light. <sup>647</sup>
<b>Zinc sulfate</b>			X		Protect the admixed parenteral nutrition solution from light. <sup>648</sup>
Ziprasidone mesylate <i>Geodon</i>	X	X			Protect from light. <sup>649</sup> Stability of reconstituted solutions is affected by light exposure; refer to prescribing information for details regarding storage after reconstitution.

<sup>a</sup>Biosimilars for this product were approved but not yet marketed at the time of article publication.

<sup>b</sup>Other formulations do not require protection from light.

storage, reconstitution, dilution, and/or administration, the reader should consult the references listed in the additional comments field for further details. Additional storage requirements (eg, temperature, humidity) and stability limits are not included in this table. The wording used by each manufacturer is maintained in the table as much as possible.

Although every effort has been made to ensure the accuracy and completeness of the information presented in this chart, the reader is advised that the authors, Hospital Pharmacy, or SAGE Publishing cannot be held responsible for the currency of the information, for any errors or omissions, or for any consequences that may arise. The reader should consult the product PI for the most updated information.

### Declaration of Conflicting Interests


The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding


The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iDs

Jessica M. Elste  <https://orcid.org/0000-0002-7561-2656>

Heather J. Ipema  <https://orcid.org/0000-0002-0981-1358>

Christie Denton  <https://orcid.org/0000-0002-8850-5390>

Faria Munir  <https://orcid.org/0000-0001-6642-498X>

### References

1. University of Illinois at Chicago College of Pharmacy, Drug Information Group. Light-sensitive injectable prescription drugs. *Hosp Pharm.* 2014;49(2):136-163. doi:10.1310/hpj.4902-136
2. U.S. Food and Drug Administration. FDALabel: full-text search of drug product labeling. 2022. Accessed October 2021.

- <https://www.fda.gov/science-research/bioinformatics-tools/fdalabel-full-text-search-drug-product-labeling> .
3. American Society of Health-System Pharmacists. ASHP injectable drug information. Updated January 11, 2022. Accessed August 2022. <https://www-medicinescomplete-com.proxy.cc.uic.edu/#/browse/hid>
  4. Collins SR. *Gahart's 2022 Intravenous Medications: A Handbook for Nurses and Health Professionals*. 38th ed. Elsevier; 2022. Accessed August 2022. <https://www-clinicalkey-com.proxy.cc.uic.edu/#!/content/book/3-s2.0-B9780323825092000021>
  5. U.S. Food and Drug Administration. Drugs@FDA: FDA-approved drugs. 2022. Accessed August 2022. <https://www.accessdata.fda.gov/scripts/cder/daf/index.cfm>.
  6. Orenca. Package insert. Bristol-Myers Squibb Company; 2021.
  7. Dysport. Package insert. Ipsen Biopharmaceuticals, Inc.; 2020.
  8. Humira. Package insert. AbbVie Inc.; 2021.
  9. Aduhelm. Package insert. Biogen Inc.; 2022.
  10. Eylea. Package insert. Regeneron Pharmaceuticals, Inc.; 2021.
  11. Zaltrap. Package insert. Sanofi-Aventis U.S. LLC; 2020.
  12. Albuminex. Package insert. Bio Products Laboratory USA Inc.; 2018.
  13. Kedbumin. Package insert. Kedrion Biopharma, Inc.; 2020.
  14. Proleukin. Package insert. Clinigen, Inc.; 2019.
  15. Lemtrada. Package insert. Genzyme Corporation; 2022.
  16. Alfentanil hydrochloride. Package insert. Hospira, Inc.; 2020.
  17. Lumizyme. Package insert. Genzyme Corporation; 2022.
  18. Praluent. Package insert. Regeneron Pharmaceuticals, Inc.; 2021.
  19. Activase. Package insert. Genentech, Inc.; 2018.
  20. Cathflo Activase. Package insert. Genentech, Inc.; 2019.
  21. Aminosyn II. Package insert. ICU Medical, Inc.; 2019.
  22. Aminosyn-PF. Package insert. ICU Medical, Inc.; 2018.
  23. ProcalAmine. Package insert. B. Braun Medical Inc.; 2019.
  24. HepatAmine. Package insert. B. Braun Medical Inc.; 2019.
  25. Premasol. Package insert. Baxter; 2014.
  26. Plenamine. Package insert. B. Braun Medical Inc.; 2020.
  27. Clinimix. Package insert. Baxter; 2021.
  28. Clinimix E. Package insert. Baxter; 2021.
  29. Prosol. Package insert. Baxter; 2020.
  30. Travasol. Package insert. Baxter; 2020.
  31. Trophamine. Package insert. B. Braun Medical Inc.; 2020.
  32. Aminophylline injection. Package insert. Hospira, Inc.; 2018.
  33. Nexterone. Package insert. Baxter Healthcare Corporation; 2021.
  34. Barhemsys. Package insert. Acacia Pharma Inc.; 2022.
  35. Rybrevant. Package insert. Janssen Biotech, Inc.; 2021.
  36. Amphotericin B. Package insert. XGen Pharmaceuticals DJB, Inc.; 2020.
  37. Abelcet. Package insert. Lediand Biosciences, Inc.; 2018.
  38. Kineret. Package insert. Swedish Orphan Biovitrum AB (publ); 2020.
  39. Saphnelo. Package insert. AstraZeneca Pharmaceuticals LP; 2021.
  40. Ebanga. Package insert. Ridgeback Biotherapeutics, LP; 2022.
  41. Advate. Package insert. Baxalta US Inc.; 2018.
  42. Adynovate. Package insert. Baxalta US Inc.; 2021.
  43. Jivi. Package insert. Bayer HealthCare LLC; 2018.
  44. Kogenate FS. Package insert. Bayer HealthCare LLC; 2019.
  45. Kovaltry. Package insert. Bayer HealthCare LLC; 2021.
  46. Recombinate. Package insert. Baxalta US Inc.; 2018.
  47. Afstyl. Package insert. CSL Behring LLC; 2021.
  48. Esperoct. Package insert. Novo Nordisk Inc.; 2019.
  49. Novoeight. Package insert. Novo Nordisk Inc.; 2020.
  50. Nuwiq. Package insert. Octapharma USA, Inc.; 2021.
  51. Obizur. Package insert. Baxalta US Inc.; 2021.
  52. Xyntha. Package insert. Pfizer; 2020.
  53. Xyntha Solofuse. Package insert. Pfizer; 2020.
  54. Koate. Package insert. Kedrion Biopharma Inc.; 2018.
  55. Feiba. Package insert. Baxalta US Inc.; 2020.
  56. Atgam. Package insert. Pharmacia & Upjohn Co; 2021.
  57. Thymoglobulin. Package insert. Genzyme Corporation; 2020.
  58. Argatroban injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2020.
  59. Argatroban solution. Package insert. Gland Pharma Limited; 2017.
  60. Abilify Maintena. Package insert. Otsuka Pharmaceutical Co., Ltd.; 2020.
  61. Artesunate injection. Package insert. Amivas, Inc.; 2021.
  62. Septocaine. Package insert. Septodont Inc.; 2019.
  63. Ascor. Package insert. McGuff Pharmaceuticals, Inc.; 2022.
  64. Strensiq. Package insert. Alexion Pharmaceuticals, Inc.; 2020.
  65. Rylaze. Package insert. Jazz Pharmaceuticals, Inc.; 2021.
  66. Tacentriq. Package insert. Genentech, Inc.; 2022.
  67. Inmazeb. Package insert. Regeneron Pharmaceuticals, Inc.; 2022.
  68. Bavencio. Package insert. EMD Serono, Inc.; 2020.
  69. Azathioprine sodium injection. Package insert. West-Ward Pharmaceuticals Corp.; 2019.
  70. BCG vaccine. Package insert. Merck & Co., Inc.; 2021.
  71. TICE BCG. Package insert. Merck & Co., Inc.; 2021.
  72. Nulojix. Package insert. Bristol-Myers Squibb Company; 2021.
  73. Benlysta. Package insert. GlaxoSmithKline; 2021.
  74. Belrapzo. Package insert. Eagle Pharmaceuticals, Inc.; 2021.
  75. Bendeka. Package insert. Teva Pharmaceuticals USA, Inc.; 2021.
  76. Treanda. Package insert. Cephalon, Inc.; 2021.
  77. Fasenra. Package insert. AstraZeneca Pharmaceuticals LP; 2021.
  78. Survanta. Package insert. AbbVie Inc.; 2020.
  79. Celestone Soluspan. Package insert. Merck & Co., Inc.; 2018.
  80. Alymsys. Package insert. Amneal Pharmaceuticals LLC; 2022.
  81. Avastin. Package insert. Genentech, Inc.; 2021.
  82. Mvasi. Package insert. Amgen Inc.; 2021.
  83. Zirabev. Package insert. Pfizer Inc.; 2021.
  84. Zinplava. Package insert. Merck & Co., Inc.; 2016.
  85. Blincyto. Package insert. Amgen Inc.; 2022.
  86. Velcade. Package insert. Takeda Pharmaceuticals, Inc.; 2021.
  87. Vyleesi. Package insert. Palatin Technologies, Inc.; 2021.
  88. Adcetris. Package insert. Seagen Inc.; 2019.
  89. Zulresso. Package insert. Sage Therapeutics, Inc.; 2022.

90. TissueBlue Syringe. Package insert. Dutch Ophthalmic, USA; 2019.
91. Siliq. Package insert. Bausch Health US, LLC; 2020.
92. Beovu. Package insert. Novartis Pharmaceuticals Corporation; 2022.
93. Bumetanide injection. Package insert. Hospira, Inc.; 2021.
94. Zynrelef. Package insert. Heron Therapeutics, Inc.; 2021.
95. Marcaine and Marcaine with epinephrine. Package insert. Hospira, Inc.; 2020.
96. Sensorcaine and Sensorcaine MPF. Package insert. Fresenius Kabi USA, LLC; 2019.
97. Buprenex. Package insert. Indivior Inc.; 2022.
98. Crysvida. Package insert. Ultragenyx Pharmaceutical Inc.; 2020.
99. Butorphanol tartrate injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2020.
100. Berinert. Package insert. CSL Behring LLC; 2021.
101. Cinryze. Package insert. ViroPharma Biologics LLC; 2021.
102. Haegarda. Package insert. CSL Behring LLC; 2020.
103. Ruconest. Package insert. Pharming Healthcare Inc.; 2020.
104. Asparlas. Package insert. Servier Pharmaceuticals LLC; 2021.
105. Calcitriol injection. Package insert. Gland Pharma Limited; 2017.
106. Ilaris. Package insert. Novartis Pharmaceuticals Corporation; 2020.
107. Cablivi. Package insert. Genzyme Corporation; 2022.
108. Carboplatin injection. Package insert. Fresenius Kabi USA, LLC; 2021.
109. Kyprolis. Package insert. Amgen Inc.; 2022.
110. BiCNU. Package insert. Avet Pharmaceuticals Inc.; 2021.
111. Amondys. Package insert. Sarepta Therapeutics, Inc.; 2021.
112. Cefazolin sodium powder for solution. Package insert. Samson Medical Technologies, L.L.C.; 2020.
113. Cefazolin and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2021.
114. Cefepime hydrochloride powder for solution. Package insert. Sagent Pharmaceuticals; 2021.
115. Cefepime and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2018.
116. Fetroja. Package insert. Shionogi Inc.; 2021.
117. Cefotaxime injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2021.
118. Cefotan. Package insert. Teligent Pharma, Inc.; 2018.
119. Cefotetan and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2020.
120. Cefoxitin and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2019.
121. Fortaz. Package insert. Teligent Pharma, Inc.; 2019.
122. Tazicef. Package insert. Hospira, Inc.; 2020.
123. Ceftazidime and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2021.
124. Avycaz. Package insert. Allergan, Inc.; 2020.
125. Zerbaxa. Package insert. Merck & Co., Inc.; 2022.
126. Ceftriaxone powder for injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2019.
127. Ceftriaxone and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2022.
128. Cefuroxime powder for injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2021.
129. Cefuroxime and dextrose injection solution. Package insert. B. Braun Medical Inc.; 2020.
130. Libtayo. Package insert. Regeneron Pharmaceuticals, Inc.; 2021.
131. Brineura. Package insert. BioMarin Pharmaceutical Inc.; 2020.
132. Cimzia. Package insert. UCB, Inc.; 2019.
133. Cetrotide. Package insert. EMD Serono, Inc.; 2018.
134. Clorotekal. Package insert. B. Braun Medical, Inc.; 2018.
135. Nesacaine and Nesacaine MPF. Package insert. Fresenius Kabi; 2019.
136. Chlorpromazine. Package insert. Hikma Pharmaceuticals USA Inc.; 2020.
137. Ovidrel. Package insert. EMD Serono, Inc.; 2018.
138. Ciprofloxacin injection solution. Package insert. Baxter; 2020.
139. Otiprio. Package insert. ALK-Abelló, Inc.; 2021.
140. Nimbex. Package insert. AbbVie Inc.; 2019.
141. Cisplatin. Package insert. Fresenius Kabi USA, LLC; 2017.
142. Cladribine. Package insert. Hikma Pharmaceuticals USA Inc.; 2019.
143. Cleviprex. Package insert. Chiesi USA, Inc.; 2021.
144. Alprolix. Package insert. Bioverativ Therapeutics Inc.; 2020.
145. Idelvion. Package insert. CSL Behring; 2021.
146. Ixinity. Package insert. Medexus Pharma, Inc.; 2021.
147. Rebinyn. Package insert. Novo Nordisk; 2020.
148. Coagadex. Package insert. Bio Products Laboratory Limited; 2020.
149. Vaprisol. Package insert. Cumberland Pharmaceuticals Inc.; 2017.
150. Acthrel. Package insert. Ferring Pharmaceuticals Inc.; 2018.
151. Adakveo. Package insert. Novartis Pharmaceuticals Corporation; 2021.
152. Cyanocobalamin. Package insert. Fresenius Kabi USA, LLC; 2018.
153. Sandimmune. Package insert. Novartis Pharmaceuticals Corporation; 2021.
154. Elcys. Package insert. Exela Pharma Sciences, LLC; 2019.
155. Cytarabine injection. Package insert. Mylan Institutional LLC; 2020.
156. Dacarbazine injection. Package insert. Teva Pharmaceuticals USA, Inc.; 2020.
157. Cosmegen. Package insert. Recordati Rare Diseases, Inc.; 2018.
158. Dantrium. Package insert. Par Pharmaceuticals; 2016.
159. Revonto. Package insert. USWM, LLC; 2020.
160. Ryandodex. Package insert. Eagle Pharmaceuticals, Inc.; 2020.
161. Darzalex. Package insert. Janssen Biotech, Inc.; 2022.
162. Darzalex Faspro. Package insert. Janssen Biotech, Inc.; 2022.
163. Aranesp. Package insert. Amgen Inc.; 2019.
164. Zegalogue. Package insert. Zealand Pharma US, Inc.; 2021.
165. Vyxeos. Package insert. Jazz Pharmaceuticals, Inc.; 2021.
166. Daunorubicin. Package insert. Hisun Pharmaceuticals USA Inc.; 2019.
167. Prolia. Package insert. Amgen Inc.; 2022.
168. Xgeva. Package insert. Amgen Inc.; 2020.
169. Dexamethasone sodium phosphate. Package insert. Somerset Therapeutics, LLC; 2021.
170. Cystografin. Package insert. Bracco Diagnostics Inc.; 2018.



171. Cystografin Dilute. Package insert. Bracco Diagnostics Inc.; 2018.
172. Diazepam injection. Package insert. Hikma Pharmaceuticals USA Inc.; 2021.
173. Lanoxin and Lanoxin Pediatric. Package insert. Covis Pharma US, Inc.; 2020.
174. D.H.E. 45. Package insert. Bausch Health US, LLC; 2022.
175. Dimenhydrinate. Package insert. Fresenius Kabi USA, LLC; 2008.
176. Unituxin. Package insert. United Therapeutics Corporation; 2020.
177. Diphenhydramine. Package insert. Mylan Institutional LLC; 2021.
178. Dipyridamole. Package insert. West-ward Pharmaceuticals; 2011.
179. Taxotere. Package insert. Sanofi-Aventis U.S. LLC; 2022.
180. Jemperli. Package insert. GlaxoSmithKline; 2022.
181. Hecetrol. Package insert. Genzyme Corporation; 2018.
182. Doxorubicin. Package insert. Hikma Pharmaceuticals USA Inc.; 2021.
183. Doxy 100. Package insert. Fresenius Kabi USA, LLC; 2020.
184. Droperidol. Package insert. American Regent, Inc.; 2009.
185. Trulicity. Package insert. Eli Lilly and Company; 2022.
186. Dupixent. Package insert. Sanofi-Aventis U.S. LLC; 2022.
187. Imfinzi. Package insert. AstraZeneca Pharmaceuticals LP; 2022.
188. Kalbitor. Package insert. Takeda Pharmaceuticals U.S.A., Inc.; 2021.
189. Soliris. Package insert. Alexion Pharmaceuticals, Inc.; 2020.
190. Radicava. Package insert. Mitsubishi Tanabe Pharma America, Inc.; 2021.
191. Vyvgart. Package insert. Argenx US, Inc.; 2022.
192. Revcovi. Package insert. Chiesi USA, Inc.; 2021.
193. Vimizim. Package insert. BioMarin Pharmaceutical Inc.; 2019.
194. Empliciti. Package insert. Bristol-Myers Squibb Company; 2022.
195. Gamifant. Package insert. Swedish Orphan Biovitrum AB; 2020.
196. Hemlibra. Package insert. Genentech, Inc.; 2021.
197. Akovaz. Package insert. Exela Pharma Sciences, LLC; 2021.
198. Adrenalin. Package insert. Par Pharmaceutical; 2020.
199. Adrenaclick. Package insert. Amneal Pharmaceuticals LLC; 2021.
200. Auvi-Q. Package insert. Kaleo, Inc.; 2019.
201. Epipen and Epipen Jr. Package insert. Mylan Specialty L.P.; 2020.
202. Symjepi. Package insert. Adamis Pharmaceuticals Corp.; 2021.
203. Ellence. Package insert. Pharmacia & Upjohn Co.; 2020.
204. Epogen. Package insert. Amgen Inc.; 2018.
205. Procrit. Package insert. Amgen Inc.; 2018.
206. Retacrit. Package insert. Pfizer Laboratories; 2020.
207. Flolan. Package insert. GlaxoSmithKline; 2021.
208. Veletri. Package insert. Actelion Pharmaceuticals US, Inc.; 2021.
209. Eptifibatide. Package insert. AuroMedics Pharma LLC; 2021.
210. Vyepti. Package insert. Lundbeck Seattle BioPharmaceuticals, Inc.; 2021.
211. Xerava. Package insert. Tetrphase Pharmaceuticals, Inc.; 2021.
212. Aimovig. Package insert. Amgen, Inc.; 2021.
213. Nexium. Package insert. AstraZeneca Pharmaceuticals LP; 2022.
214. Enbrel. Package insert. Immunex Corporation; 2022.
215. Parsabiv. Package insert. Amgen Inc.; 2021.
216. Exondys 51. Package insert. Sarepta Therapeutics; 2022.
217. Ethamolin. Package insert. QOL Medical; 2019.
218. Lipiodol. Package insert. Guerbet LLC; 2020.
219. Etopophos. Package insert. H2-Pharma, LLC; 2019.
220. Evkeeza. Package insert. Regeneron Pharmaceuticals, Inc.; 2021.
221. Repatha. Package insert. Amgen Inc.; 2021.
222. Bydureon Bcise. Package insert. AstraZeneca Pharmaceuticals LP; 2022.
223. Byetta. Package insert. AstraZeneca Pharmaceuticals LP; 2022.
224. NovoSeven RT. Package insert. Novo Nordisk Inc.; 2020.
225. SevenFACT. Package insert. HEMA Biologics; 2020.
226. Tretten. Package insert. Novo Nordisk Inc.; 2020.
227. Corifact. Package insert. CSL Behring LLC; 2020.
228. Vabysmo. Package insert. Genentech, Inc.; 2022.
229. Fentanyl. Package insert. Hospira, Inc.; 2019.
230. Fentanyl. Package insert. Akorn; 2021.
231. Triferic. Package insert. Rockwell Medical, Inc.; 2020.
232. Triferic Avnu. Package insert. Rockwell Medical, Inc.; 2020.
233. Fibryga. Package insert. Octapharma USA Inc.; 2020.
234. RiaSTAP. Package insert. CSL Behring LLC; 2021.
235. Neupogen. Package insert. Amgen Inc.; 2021.
236. Nivestym. Package insert. Pfizer Labs; 2021.
237. Releuko. Package insert. Amneal Biosciences, LLC; 2022.
238. Zarxio. Package insert. Sandoz Inc.; 2021.
239. Granix. Package insert. Cephalon, Inc.; 2020.
240. Omegaven. Package insert. Fresenius Kabi; 2020.
241. SMOFlipid. Package insert. Fresenius Kabi; 2022.
242. Fluorouracil. Package insert. Xiromed, LLC; 2021.
243. Fluphenazine decanoate. Package insert. AuroMedics Pharma LLC; 2021.
244. Fluphenazine hydrochloride. Package insert. Fresenius Kabi; 2016.
245. Folic acid. Package insert. XGen Pharmaceuticals DJB, Inc.; 2020.
246. Gonal-f. Package insert. EMD Serono, Inc.; 2020.
247. Gonal-f RFF. Package insert. EMD Serono, Inc.; 2020.
248. Follistim AQ. Package insert. Merck & Co, Inc.; 2020.
249. Nulibry. Package insert. Origin Biosciences, Inc.; 2021.
250. Akynzeo. Package insert. Helsinn Therapeutics (U.S.), Inc.; 2021.
251. Ajovy. Package insert. Teva Pharmaceuticals USA, Inc.; 2021.
252. Faslodex. Package insert. AstraZeneca Pharmaceuticals LP; 2021.
253. Furosemide. Package insert. Wockhardt USA LLC; 2021.
254. Omnican. Package insert. GE Healthcare Inc.; 2019.
255. ProHance. Package insert. Bracco Diagnostics Inc.; 2021.
256. Emgality. Package insert. Eli Lilly and Company; 2021.
257. Naglazyme. Package insert. BioMarin Pharmaceutical Inc.; 2019.
258. Fyremadel. Package insert. Ferring Pharmaceuticals Inc.; 2022.
259. Mylotarg. Package insert. Wyeth Pharmaceuticals LLC; 2021.

260. Copaxone. Package insert. Teva Neuroscience, Inc.; 2022.
261. Glatopa. Package insert. Sandoz Inc.; 2020.
262. GlucaGen. Package insert. Boehringer Ingelheim Pharmaceuticals, Inc.; 2021.
263. Gvoke. Package insert. Xeris Pharmaceuticals, Inc.; 2021.
264. Simponi. Package insert. Janssen Biotech, Inc.; 2019.
265. Simponi Aria. Package insert. Janssen Biotech, Inc.; 2021.
266. Vyondys. Package insert. Sarepta Therapeutics, Inc.; 2021.
267. Sustol. Package insert. Heron Therapeutics; 2017.
268. Granisetron immediate release injection. Package insert. Akorn, Inc.; 2022.
269. Tremfya. Package insert. Janssen Biotech, Inc.; 2020.
270. Hiberix. Package insert. GlaxoSmithKline Biologicals; 2019.
271. Haldol Decanoate. Package insert. Janssen Pharmaceuticals, Inc.; 2020.
272. Haloperidol lactate. Package insert. Fresenius Kabi; 2021.
273. Histatrol. Package insert. Alk-Abello, Inc.; 2008.
274. Gardasil 9. Package insert. Merck Sharp & Dohme Corp.; 2021.
275. Vitrase. Package insert. Bausch + Lomb; 2018.
276. Solu-Cortef. Package insert. Pharmacia & Upjohn Co.; 2021.
277. Dilaudid. Package insert. Fresenius Kabi; 2020.
278. Hydroxocobalamin. Package insert. Actavis Pharma, Inc.; 2017.
279. Makena. Package insert. AMAG Pharmaceuticals, Inc.; 2018.
280. Hydroxyzine. Package insert. American Regent, Inc.; 2016.
281. Trogarzo. Package insert. Theratechnologies Inc.; 2021.
282. NeoProfen. Package insert. Recordati Rare Diseases Inc.; 2021.
283. Idamycin PFS. Package insert. Pharmacia & Upjohn Co.; 2022.
284. Praxbind. Package insert. Boehringer Ingelheim Pharmaceuticals, Inc.; 2021.
285. Elaprase. Package insert. Takeda Pharmaceuticals U.S.A., Inc.; 2021.
286. Recarbrio. Package insert. Merck Sharp & Dohme Corp.; 2021.
287. Recarbrio. Customized response letter. Merck Sharp & Dohme Corp.; 2022.
288. Hyqvia. Package insert. Baxalta US Inc.; 2021.
289. Cutaquig. Package insert. Octapharma USA Inc.; 2021.
290. Cuvitru. Package insert. Baxalta US Inc.; 2021.
291. Flebogamma DIF. Package insert. Grifols Therapeutics LLC; 2019.
292. Gammagard Liquid. Package insert. Baxalta US Inc.; 2021.
293. Gammaked. Package insert. Grifols Therapeutics LLC; 2020.
294. Gammaplex. Package insert. Bio Products Laboratory Ltd.; 2019.
295. Gamunex-C. Package insert. Grifols Therapeutics LLC; 2020.
296. Hizentra. Package insert. CSL Behring LLC; 2021.
297. Privigen. Package insert. CSL Behring LLC; 2022.
298. Octagam. Package insert. Octapharma USA Inc.; 2021.
299. Panzyga. Package insert. Octapharma USA Inc.; 2021.
300. Bludigo. Package insert. Provepharm Inc.; 2022.
301. Indomethacin sodium. Package insert. Hospira; 2021.
302. Uplinza. Package insert. Horizon Therapeutics, Inc.; 2021.
303. Avsola. Package insert. Amgen; 2021.
304. Inflectra. Package insert. Pfizer; 2021.
305. Remicade. Package insert. Janssen; 2021.
306. Afluria quadrivalent. Package insert. Seqirus; 2021.
307. Fluad quadrivalent. Package insert. Seqirus; 2021.
308. Flublok quadrivalent. Package insert. Sanofi Pasteur; 2021.
309. Flucelvax quadrivalent multi-dose vial. Package insert. Seqirus; 2021.
310. Flucelvax quadrivalent prefilled syringe. Package insert. Seqirus; 2021.
311. Fluarix quadrivalent. Package insert. GlaxoSmithKline Biologicals SA; 2021.
312. Flulaval quadrivalent. Package insert. ID Biomedical Corp; 2021.
313. Tegsedi. Package insert. Akcea Therapeutics, Inc.; 2021.
314. Besponsa. Package insert. Wyeth Pharmaceuticals LLC; 2018.
315. Fiasp. Package insert. Novo Nordisk Inc.; 2019.
316. Novolog. Package insert. Novo Nordisk Inc.; 2021.
317. Novolog Mix 70/30. Package insert. Novo Nordisk Inc.; 2021.
318. Tresiba. Package insert. Novo Nordisk Inc.; 2022.
319. Xultophy. Package insert. Novo Nordisk; 2022.
320. Levemir. Package insert. Novo Nordisk Inc.; 2022.
321. Basaglar. Package insert. Eli Lilly and Company; 2021.
322. Lantus. Package insert. Sanofi-Aventis U.S. LLC; 2022.
323. Toujeo. Package insert. Sanofi-Aventis U.S. LLC; 2020.
324. Soliqua. Package insert. Sanofi-Aventis U.S. LLC; 2022.
325. Rezvoglar. Package insert. Eli Lilly and Company; 2021.
326. Semglee. Package insert. Mylan Pharmaceuticals Inc.; 2021.
327. Apidra and Apidra SoloStar. Package insert. Sanofi-Aventis U.S. LLC; 2020.
328. Humulin 70/30. Package insert. Lilly USA, LLC; 2022.
329. Novolin 70/30. Package insert. Novo Nordisk Inc.; 2019.
330. Admelog. Package insert. Sanofi-Aventis U.S. LLC; 2020.
331. Humalog. Package insert. Lilly USA, LLC; 2019.
332. Humalog Mix 50/50. Package insert. Lilly USA, LLC; 2019.
333. Humalog Mix 75/25. Package insert. Lilly USA, LLC; 2019.
334. Humalog Mix 75/25. Communication with manufacturer. Lilly USA, LLC; 2022.
335. Lyumjev. Package insert. Eli Lilly and Company; 2021.
336. Humulin R Humulin R U-500. Package insert. Lilly USA, LLC; 2022.
337. Myxredlin. Package insert. Baxter Healthcare Corporation; 2020.
338. Novolin R. Package insert. Novo Nordisk Inc.; 2019.
339. Avonex. Package insert. Biogen, Inc.; 2021.
340. Rebif. Package insert. EMD Serono, Inc.; 2021.
341. Visipaque. Package insert. GE Healthcare, Inc.; 2022.
342. Omnipaque. Package insert. GE Healthcare, Inc.; 2022.
343. Isovue. Package insert. Bracco Diagnostics; 2022.
344. Isovue-M. Package insert. Bracco Diagnostics; 2021.
345. Ultravist. Package insert. Bayer Healthcare; 2022.
346. Conray. Package insert. Guerbet; 2022.
347. Cysto-Conray II. Package insert. Guerbet; 2017.
348. Optiray. Package insert. Liebel-Flarsheim; 2022.
349. Yervoy. Package insert. E.R. Squibb & Sons; 2022.
350. Camposar. Package insert. Pfizer; 2022.
351. Onivyde. Package insert. Ipsen; 2020.
352. Sarclisa. Package insert. Sanofi-Aventis; 2021.
353. Isoniazid. Package insert. Sandoz; 2019.



354. Isuprel. Package insert. Bausch Health; 2020.
355. Ixempra. Package insert. R-Pharm US Operating, LLC; 2022.
356. Taltz. Package insert. Eli Lilly; 2021.
357. Ixiaro. Package insert. Valneva Scotland Ltd; 2018.
358. Ketalar. Package insert. Par Pharmaceuticals; 2020.
359. Ketorolac tromethamine. Package insert. Fresenius Kabi; 2020.
360. Labetalol hydrochloride. Package insert. Hospira; 2021.
361. Labetalol hydrochloride in sodium chloride. Package insert. Hikma; 2020.
362. Takhzyro. Package insert. Takeda Pharmaceuticals; 2022.
363. Somatuline Depot. Package insert. Ipsen Biopharmaceuticals Inc.; 2019.
364. Aldurazyme. Package insert. Genzyme; 2019.
365. Prevymis. Package insert. Merck Sharp & Dohme Corp; 2021.
366. Leucovorin calcium solution. Package insert. Fresenius Kabi; 2018.
367. Leucovorin calcium, powder, lyophilized for solution. Package insert. Hikma; 2021.
368. Leuprolide acetate. Package insert. Sandoz; 2021.
369. Camcevi. Package insert. Accord BioPharma Inc.; 2021.
370. Levocarnitine. Package insert. American Regent; 2019.
371. Levofloxacin. Package insert. Akorn; 2020.
372. Levofloxacin in 5% Dextrose. Package insert. Auromedics; 2021.
373. Fusilev. Package insert. Acrotech Biopharma; 2020.
374. Khapzory. Package insert. Acrotech Biopharma; 2020.
375. Levothyroxine. Package insert. Fresenius Kabi; 2020.
376. Levothyroxine lyophilized powder. Package insert. Maia Pharma; 2019.
377. Xylocaine. Package insert. Fresenius Kabi; 2020.
378. Xylocaine with epinephrine. Package insert. Fresenius Kabi; 2020.
379. Zyvox. Package insert. Pharmacia & Upjohn Company LLC; 2021.
380. Linezolid. Personal communication. Hospira; 2022.
381. Saxenda. Package insert. Novo Nordisk; 2022.
382. Victoza. Package insert. Novo Nordisk; 2022.
383. Adlyxin. Package insert. Sanofi-Aventis; 2022.
384. Skytrofa. Package insert. Ascendis Pharma Endocrinology, Inc.; 2022.
385. Zynlonta. Package insert. ADC Therapeutics; 2021.
386. Ativan. Package insert. Hikma; 2021.
387. Reblozyl. Package insert. Celgene Corp; 2022.
388. Margenza. Package insert. Macrogenics; 2020.
389. MMR II. Package insert. Merck Sharp & Dohme; 2020.
390. Proquad. Package insert. Merck Sharp & Dohme; 2021.
391. Anjeso. Package insert. Baudax Bio; 2021.
392. Evomela. Package insert. Acrotech Biopharma; 2022.
393. Menveo. Package insert. GlaxoSmithKline; 2020.
394. Menopur. Package insert. Ferring Pharmaceuticals; 2018.
395. Carbocaine and Carbocaine with Neo-Cobefrin. Package insert. Septodont; 2020.
396. Polocaine Dental and Polocaine Dental with Neo-Cobefrin. Package insert. Dentsply Pharmaceutical; 2020.
397. Nucala. Package insert. GlaxoSmithKline; 2022.
398. Meropenem and sodium chloride injection. Package insert. B. Braun Medical; 2020.
399. Increlex. Package insert. Ipsen Biopharmaceuticals; 2019.
400. Methadone hydrochloride. Package insert. Mylan; 2021.
401. Methotrexate injection. Package insert. Accord Pharma; 2021.
402. Methotrexate lyophilized powder for injection. Package insert. Fresenius Kabi; 2021.
403. Rasuvo. Package insert. Medexus Pharma; 2020.
404. Otrexup. Package insert. Antares Pharma; 2019.
405. Mircera. Package insert. Vifor Inc.; 2018.
406. Provayblue. Package insert. American Regent; 2021.
407. Methergine. Package insert. Novartis; 2012.
408. Relistor. Package insert. Salix Pharmaceuticals; 2020.
409. Solu-Medrol. Package insert. Pharmacia & UpJohn Company; 2021.
410. Metoclopramide. Package insert. Fresenius Kabi; 2021.
411. Metoprolol injection solution. Package insert. Hospira; 2020.
412. Myalept. Package insert. Amryt Pharmaceuticals; 2022.
413. Metronidazole. Package insert. Hospira; 2021.
414. Mycamine. Package insert. Astellas; 2020.
415. Midazolam hydrochloride. Package insert. Exela Pharma Sciences; 2022.
416. Mitomycin. Package insert. Gland Pharma; 2021.
417. Jelmyto. Package insert. UroGen Pharma, Inc.; 2021.
418. Mitosol. Package insert. Mobius Therapeutics, LLC; 2021.
419. Poteligeo. Package insert. Kyowa Kirin; 2022.
420. Duramorph PF. Package insert. Hikma; 2020.
421. Infumorph. Package insert. Hikma; 2020.
422. Mitigo. Package insert. Piral Critical Care; 2021.
423. Lumoxiti. Package insert. AstraZeneca; 2022.
424. Nalbuphine. Package insert. Hospira; 2020.
425. Naloxone. Package insert. Hikma; 2022.
426. Zimhi. Package insert. USWM; 2021.
427. Tysabri. Package insert. Biogen; 2021.
428. Danyelza. Package insert. Y-mabs Therapeutics; 2020.
429. Portrazza. Package insert. Eli Lilly; 2015.
430. Bloxiverz. Package insert. Exela Pharma; 2021.
431. Nicardipine. Package insert. Hikma; 2020.
432. Cardene I.V. Package insert. Baxter; 2020.
433. Nitroglycerin in dextrose. Package insert. Baxter; 2016.
434. Nitroglycerin. Package insert. American Regent; 2005.
435. Opdivo. Package insert. E.R. Squibb & Sons; 2021.
436. Opdualag. Package insert. Bristol-Myers Squibb Company; 2022.
437. Levophed. Package insert. Hospira; 2020.
438. Norepinephrine bitartrate injection, solution. Package insert. Baxter Healthcare Corporation; 2021.
439. Spinraza. Package insert. Biogen; 2020.
440. Anthim. Package insert. Elusys Therapeutics; 2019.
441. Gazyva. Package insert. Genentech; 2022.
442. Ocrevus. Package insert. Genentech; 2021.
443. Sandostatin. Package insert. Novartis; 2021.
444. Sandostatin LAR. Package insert. Novartis; 2021.
445. Arzerra. Package insert. Novartis; 2016.
446. Kesimpta. Package insert. Novartis; 2020.
447. Zyprexa IntraMuscular. Package insert. Eli Lilly; 2021.
448. Zyprexa Relprevv. Package insert. Eli Lilly; 2021.
449. Olinvyk. Package insert. Trevena; 2021.
450. Synribo. Package insert. Teva; 2021.
451. Xolair. Package insert. Genentech; 2021.

452. Ondansetron. Package insert. Accord; 2022.
453. Orphenadrine. Package insert. Akorn; 2019.
454. Oxaliplatin injection solution. Package insert. Gland Pharma; 2021.
455. Oxaliplatin lyophilized powder. Package insert. Actavis; 2020.
456. Abraxane. Package insert. Abraxis BioScience, LLC; 2020.
457. Paclitaxel. Package insert. Hospira, Inc.; 2021.
458. Cytalux. Package insert. On Target Laboratories; 2021.
459. Kepivance. Package insert. Swedish Orphan Biovitrum; 2020.
460. Palonosetron. Package insert. Cipla USA Inc.; 2022.
461. Vectibix. Package insert. Amgen Inc.; 2021.
462. Protonix I.V. Package insert. Wyeth Pharmaceuticals, LLC; 2022.
463. Papaverine. Package insert. BPI Labs; 2021.
464. Natpara. Package insert. Shire-NPS Pharmaceuticals, Inc.; 2022.
465. Signifor. Package insert. Recordati Rare Diseases; 2020.
466. Oncaspar. Package insert. Servier Pharmaceuticals, LLC; 2021.
467. Empaveli. Package insert. Apellis Pharmaceuticals, Inc.; 2021.
468. Fulphila. Package insert. Mylan Pharmaceuticals, Inc.; 2021.
469. Fylnetra. Package insert. Kashiv BioSciences, LLC; 2022.
470. Neulasta and Neulasta Onpro. Package insert. Amgen; 2021.
471. Nyvepria. Package insert. Hospira, Inc.; 2021.
472. Udenyca. Package insert. Coherus BioSciences, Inc.; 2021.
473. Ziextenzo. Package insert. Sandoz, Inc.; 2021.
474. Pegasys. Package insert. Genentech; 2021.
475. Plegriidy. Package insert. Biogen; 2022.
476. Krystexxa. Package insert. Horizon; 2022.
477. Palyzinq. Package insert. Biomarin Pharmaceuticals; 2020.
478. Keytruda. Package insert. Merck Sharpe & Dohme; 2022.
479. Pemetrexed solution for injection. Accord Healthcare, Inc.; 2022.
480. Pentam. Package insert. Fresenius Kabi USA, LLC; 2019.
481. Dianeal Low Calcium and Dianeal PD-2. Package insert. Baxter Healthcare Corporation; 2019.
482. Extraneal. Package insert. Baxter Healthcare Corporation; 2020.
483. Extraneal and Dianeal. Customized response letter. Baxter Healthcare Corporation; 2022.
484. Perjeta. Package insert. Genentech, Inc.; 2021.
485. Phesgo. Package insert. Genentech, Inc.; 2020.
486. Oraverse. Package insert. Septodont, Inc.; 2017.
487. Omidria. Package insert. Omeros Corporation; 2017.
488. Vazculep. Package insert. Exela Phrama Sciences, LLC; 2021.
489. Phytonadione. Package insert. International Medication Systems, Limited; 2021.
490. Polivy. Package insert. Genentech, Inc.; 2020.
491. Varithena. Package insert. Biocompatibles, Inc.; 2021.
492. IPOL. Package insert. Sanofi Pasteur, Inc.; 2022.
493. Polymyxin B. Package insert. AuroMedics Pharma, LLC; 2021.
494. Photofrin. Package insert. Pinnacle Biologics, Inc.; 2021.
495. Potassium phosphates. Package insert. Fresenius Kabi; 2019.
496. Jeuveau. Package insert. Evolus, Inc.; 2021.
497. Folutyn. Package insert. Acrotech Biopharma, LLC; 2020.
498. Symlin. Package insert. AstraZeneca Pharmaceuticals; 2019.
499. Citanest Forte Dental. Package insert. Dentsply Pharmaceutical, Inc.; 2020.
500. Prochlorperazine. Package insert. Nexus Pharmaceuticals, Inc.; 2021.
501. Phenergan. Package insert. Hikma Pharmaceuticals USA Inc.; 2020.
502. Propranolol Hydrochloride. Package insert. Fresenius Kabi USA, LLC; 2020.
503. Ceprotin. Package insert. Baxalta US, Inc.; 2021.
504. Regonol. Package insert. Sandoz, Inc.; 2021.
505. Pyridoxine. Package insert. Fresenius Kabi USA, LLC; 2019.
506. RabAvert. Package insert. GlaxoSmithKline Biologicals; 2019.
507. Cyramza. Package insert. Eli Lilly and Company; 2022.
508. Byooviz. Package insert. Biogen Inc.; 2022.
509. Lucentis. Package insert. Genentech, Inc.; 2018.
510. Susvimo. Package insert. Genentech, Inc.; 2022.
511. Elitek. Package insert. Sanofi-Aventis U.S., LLC; 2019.
512. Ultomiris. Package insert. Alexion Pharmaceuticals, Inc.; 2022.
513. Raxibacumab. Package insert. Emergent Manufacturing Operations Baltimore, LLC; 2021.
514. Byfavo. Package insert. Acacia Pharma, Ltd; 2021.
515. Cinqair. Package insert. Teva Respiratory, LLC; 2020.
516. Retavase. Package insert. Chiesi USA, Inc.; 2020.
517. Rhophylac. Package insert. CSL Behring LLC; 2020.
518. WinRho SDF. Package insert. Saol Therapeutics Inc.; 2019.
519. Rifadin. Package insert. Sanofi-Aventis U.S., LLC; 2022.
520. Arcalyst. Package insert. Kiniksa Pharmaceuticals, Ltd; 2021.
521. Myobloc. Package insert. Solstice Neurosciences, LLC; 2021.
522. Skyrizi. Package insert. AbbVie, Inc.; 2022.
523. Risperdal Consta. Package insert. Janssen Pharmaceuticals, Inc.; 2021.
524. Riabni. Package insert. Amgen, Inc.; 2022.
525. Rituxan. Package insert. Genentech, Inc.; 2021.
526. Ruxience. Package insert. Pfizer Ireland Pharmaceuticals; 2021.
527. Truxima. Package insert. Cephalon, Inc.; 2022.
528. Rituxan Hycela. Package insert. Genentech, Inc.; 2021.
529. Romidepsin. Package insert. Teva Parenteral Medicines, Inc.; 2020.
530. Nplate. Package insert. Amgen, Inc.; 2022.
531. Evenity. Package insert. Amgen, Inc.; 2020.
532. Besremi. Package insert. PharmaEssentia USA Corporation; 2021.
533. Trodelvy. Package insert. Gilead Sciences; 2022.
534. Leukine. Package insert. Partner Therapeutics, Inc.; 2022.
535. Kevzara. Package insert. Sanofi-Aventis U.S., LLC; 2018.
536. Enspryng. Package insert. Genentech, Inc.; 2021.
537. Kanuma. Package insert. Alexion Pharmaceuticals, Inc.; 2021.
538. ChiRhoStim. Package insert. ChiRhoClin, Inc.; 2017.
539. Cosentyx. Package insert. Novartis Pharmaceuticals Corporation; 2021.
540. Selenious acid. Package insert. American Regent, Inc.; 2020.
541. Uptravi. Package insert. Actelion Pharmaceuticals US, Inc.; 2021.

542. Ozempic. Package insert. Novo Nordisk; 2022.
543. Wegovy. Package insert. Novo Nordisk; 2021.
544. Imcivree. Package insert. Rhythm Pharmaceuticals, Inc.; 2022.
545. Sylvant. Package insert. EUSA Pharma (UK), Ltd; 2019.
546. Fyarro. Package insert. Aadi Bioscience, Inc.; 2021.
547. Biolon. Product information. Altacor; 2018.
548. Euflexxa. Product information. Ferring Pharmaceuticals Inc.; 2016.
549. Healon Endocoat. Directions for use. Johnson & Johnson Surgical Vision, Inc.; 2019.
550. Healon GV Pro. Directions for use. Johnson & Johnson Surgical Vision, Inc.; 2020.
551. Healon Pro. Directions for use. Johnson & Johnson Surgical Vision, Inc.; 2018.
552. Healon5 Pro. Directions for use. Johnson & Johnson Surgical Vision, Inc.; 2018.
553. Provisc. Directions for use. Alcon Laboratories, Inc.; 2012.
554. Gelsyn-3. Product information. Bioventus; 2017.
555. GenVisc 850. Prescribing information. OrthogenRx, Inc.; 2017.
556. Hyalgan. Product labeling. Fidia Pharma USA Inc.; 2014.
557. Triluron. Product information. Fidia Pharma USA Inc.; 2019.
558. Trivisc. Prescribing information. OrthogenRx, Inc.; 2019.
559. Revanesse Lips. Instructions for use. Prollenium Medical Technologies; 2020.
560. Revanesse Versa. Directions for use. Prollenium Medical Technologies; 2020.
561. Restylane. Instructions for use. Galderma Laboratories, L.P.; 2020.
562. Restylane Contour. Instructions for use. Galderma Laboratories, L.P.; 2021.
563. Restylane Defyne. Instructions for use. Galderma Laboratories, L.P.; 2021.
564. Restylane Kysse. Instructions for use. Galderma Laboratories, L.P.; 2020.
565. Restylane Lyft with Lidocaine. Instructions for use. Galderma Laboratories, L.P.; 2020.
566. Restylane Refyne. Instructions for use. Galderma Laboratories, L.P.; 2020.
567. Restylane Silk. Instructions for use. Galderma Laboratories, L.P.; 2020.
568. Restylane-L. Instructions for use. Galderma Laboratories, L.P.; 2020.
569. Sodium Nitrite. Package insert. Hope Pharmaceuticals; 2021.
570. Nithiodote. Package insert. Hope Pharmaceuticals; 2021.
571. Nipride RTU. Package insert. Exela Pharma; 2018.
572. Sodium Thiosulfate. Package insert. Hope Pharmaceuticals; 2020.
573. Sogroya. Package insert. Novo Nordisk; 2021.
574. Genotropin. Package insert. Pharmacia and Upjohn Company, LLC; 2019.
575. Humatrope. Package insert. Eli Lilly and Company; 2019.
576. Norditropin. Package insert. Novo Nordisk; 2020.
577. Nutropin AQ Nuspin. Package insert. Genentech, Inc.; 2016.
578. Omnitrope. Package insert. Sandoz, Inc.; 2019.
579. Saizen. Package insert. EMD Serono, Inc.; 2020.
580. Zomacton. Package insert. Ferring Pharmaceuticals, Inc.; 2018.
581. Sotalol Hydrochloride. Package insert. Altathera Pharmaceuticals, LLC; 2020.
582. Streptomycin. Package insert. X-GEN Pharmaceuticals, Inc.; 2015.
583. Zanosar. Package insert. Teva Parenteral Medicines, Inc.; 2021.
584. Sufentanil Citrate. Package insert. Akorn, Inc.; 2022.
585. Bridion. Package insert. Merck & Co., Inc.; 2021.
586. Imitrex injection. Package insert. GlaxoSmithKline, LLC; 2021.
587. Zembrace SymTouch. Package insert. Upsher-Smith laboratories, LLC; 2021.
588. Enjaymo. Package insert. Bioverativ USA Inc.; 2022.
589. Monjuvi. Package insert. MorphoSys US, Inc.; 2021.
590. Elzonris. Package insert. Stemline Therapeutics, Inc.; 2018.
591. Elelyso. Package insert. Pfizer, Inc.; 2021.
592. Imlygic. Package insert. Amgen, Inc.; 2022.
593. Kimmtrak. Package insert. Immunocore Commercial LLC; 2022.
594. Neulolite. Package insert. Lantheus Medical Imaging; 2019.
595. Technescan MAG3. Package insert. Curium US, LLC; 2018.
596. Myoview. Package insert. GE Healthcare AS; 2022.
597. Torisel. Package insert. Wyeth Pharmaceuticals, LLC; 2018.
598. Teniposide. Package insert. WG Critical Care, LLC; 2015.
599. Tepezza. Package insert. Horizon Therapeutics USA, Inc.; 2021.
600. Terbutaline. Package insert. Hikma Pharmaceuticals USA, Inc.; 2020.
601. Forteo. Package insert. Eli Lilly and Company; 2021.
602. Egrifta SV. Package insert. Theratechnologies, Inc.; 2019.
603. Depo-Testosterone. Package insert. Pharmacia and Upjohn Company, LLC; 2018.
604. Xyosted. Package insert. Antares Pharma, Inc.; 2019.
605. Tetracaine. Package insert. BPI Labs, LLC; 2020.
606. Tezspire. Package insert. Amgen Inc.; 2021.
607. Thiamine. Package insert. Mylan Institutional, LLC; 2021.
608. Thiotepa. Package insert. Hikma Pharmaceuticals USA, Inc.; 2019.
609. Thyrogen. Package insert. Genzyme Corporation; 2020.
610. Ilumya. Package insert. Sun Pharmaceutical Industries, Inc.; 2021.
611. Aggrastat. Package insert. Medicure International, Inc.; 2020.
612. Mounjaro. Package insert. Lilly USA, LLC; 2022.
613. Tivdak. Package insert. Seagen, Inc.; 2021.
614. Actemra. Package insert. Genentech, Inc.; 2022.
615. Hycamtin. Package insert. Novartis Pharmaceuticals Corporation; 2019.
616. Topotecan. Package insert. Mylan Institutional, LLC; 2020.
617. Adbry. Package insert. LEO Pharma Inc.; 2022.
618. Herceptin Hylecta. Package insert. Genentech, Inc.; 2019.
619. Kanjinti. Package insert. Amgen, Inc.; 2019.
620. Trazimera. Package insert. Pfizer Ireland Pharmaceuticals; 2020.
621. Enhertu. Package insert. Daiichi Sankyo, Inc.; 2021.
622. Triesence. Package insert. Alcon Laboratories, Inc.; 2016.
623. Xipere. Package insert. Bausch & Lomb Americas Inc.; 2022.
624. Kenalog-10. Package insert. Bristol-Myers Squibb Company; 2018.

625. Kenalog-40. Package insert. Bristol-Myers Squibb Company; 2019.
626. Kenalog-80. Package insert. Bristol-Myers Squibb Company; 2019.
627. VisionBlue. Package insert. Dutch Ophthalmic Research Center (International) B.V.; 2012.
628. Aplisol. Package insert. Par Pharmaceutical, Inc.; 2016.
629. Tubersol. Package insert. Sanofi Pasteur, Inc.; 2021.
630. Stelara. Package insert. Janssen Biotech, Inc.; 2020.
631. Varivax. Package insert. Merck Sharp & Dohme Corp.; 2021.
632. Shingrix. Package insert. GlaxoSmithKline Biologicals SA; 2021.
633. Zostavax. Package insert. Merck Sharp & Dohme Corp.; 2019.
634. Vecuronium. Package insert. AuroMedics Pharma, LLC; 2021.
635. Entyvio. Package insert. Takeda Pharmaceuticals America, Inc.; 2022.
636. Vpriv. Package insert. Takeda Pharmaceuticals America, Inc.; 2021.
637. Verapamil. Package insert. AuroMedics Pharma, LLC; 2021.
638. Visudyne. Package insert. Bausch Health US, LLC; 2021.
639. Mepsevii. Package insert. Ultragenyx Pharmaceutical, Inc.; 2020.
640. Vinblastine. Package insert. Fresenius Kabi USA, LLC; 2016.
641. Vincristine. Package insert. Hospira, Inc.; 2021.
642. Vinorelbine. Package insert. Sagent Pharmaceuticals; 2020.
643. Aquasol A. Package insert. Casper Pharma, LLC; 2019.
644. Wilate. Package insert. Octapharma USA, Inc.; 2019.
645. Voxzogo. Package insert. BioMarin Pharmaceutical Inc.; 2021.
646. Prialt. Package insert. TerSera Therapeutics, LLC; 2019.
647. Retrovir. Package insert. ViiV Healthcare Company; 2020.
648. Zinc sulfate. Package insert. American Regent, Inc.; 2020.
649. Geodon. Package insert. Pfizer, Inc.; 2021.