

Xigris[®]

Drotrecogin alfa (activated)

DESCRIPTION

Xigris[®] (drotrecogin alfa (activated)) is a recombinant form of human Activated Protein C. An established human cell line possessing the complementary DNA for the inactive human Protein C zymogen secretes the protein into the fermentation medium. Fermentation is carried out in a nutrient medium containing the antibiotic geneticin sulfate. Geneticin sulfate is not detectable in the final product. Human Protein C is enzymatically activated by cleavage with thrombin and subsequently purified.

Drotrecogin alfa (activated) is a serine protease with the same amino acid sequence as human plasma-derived Activated Protein C. Drotrecogin alfa (activated) is a glycoprotein of approximately 55 kilodalton molecular weight, consisting of a heavy chain and a light chain linked by a disulfide bond. Drotrecogin alfa (activated) and human plasma-derived Activated Protein C have the same sites of glycosylation, although some differences in the glycosylation structures exist.

Xigris is supplied as a sterile, lyophilized, white to off-white powder for intravenous infusion. The 5 and 20 mg vials of Xigris contain 5.3 mg and 20.8 mg of drotrecogin alfa (activated), respectively. The 5 and 20 mg vials of Xigris also contain 40.3 and 158.1 mg of sodium chloride, 10.9 and 42.9 mg of sodium citrate, and 31.8 and 124.9 mg of sucrose, respectively.

CLINICAL PHARMACOLOGY

General Pharmacology

Activated Protein C exerts an antithrombotic effect by inhibiting Factors Va and VIIIa. *In vitro* data indicate that Activated Protein C has indirect profibrinolytic activity through its ability to inhibit plasminogen activator inhibitor-1 (PAI-1) and limiting generation of activated thrombin-activatable-fibrinolysis-inhibitor. Additionally, *in vitro* data indicate that Activated Protein C may exert an anti-inflammatory effect by inhibiting human tumor necrosis factor production by monocytes, by blocking leukocyte adhesion to selectins, and by limiting the thrombin-induced inflammatory responses within the microvascular endothelium.

Pharmacodynamics

The specific mechanisms by which Xigris exerts its effect on survival in patients with severe sepsis are not completely understood. In patients with severe sepsis, Xigris infusions of 48 or 96 hours produced dose dependent declines in D-dimer and IL-6. Compared to placebo, Xigris-treated patients experienced more rapid declines in D-dimer, PAI-1 levels, thrombin-antithrombin levels, prothrombin F1.2, IL-6, more rapid increases in protein C and antithrombin levels, and normalization of plasminogen. As assessed by infusion duration, the maximum observed pharmacodynamic effect of drotrecogin alfa (activated) on D-dimer levels occurred at the end of 96 hours of infusion for the 24 mcg/kg/hr treatment group.

Human Pharmacokinetics

Xigris and endogenous Activated Protein C are inactivated by endogenous plasma protease inhibitors. Plasma concentrations of endogenous Activated Protein C in healthy subjects and patients with severe sepsis are usually below detection limits.

In patients with severe sepsis, Xigris infusions of 12 mcg/kg/hr to 30 mcg/kg/hr rapidly produce steady state concentrations (C_{ss}) that are proportional to infusion rates. In the Phase 3 trial (*see* **CLINICAL STUDIES**), the median clearance of Xigris was 40 L/hr (interquartile range of 27 to 52 L/hr). The median C_{ss} of 45 ng/mL (interquartile range of 35 to 62 ng/mL) was attained within 2 hours after starting infusion. In the majority of patients, plasma concentrations

48 of Xigris fell below the assay's quantitation limit of 10 ng/mL within 2 hours after stopping
49 infusion. Plasma clearance of Xigris in patients with severe sepsis is approximately 50% higher
50 than that in healthy subjects.

51 **Special Populations**

52 In adult patients with severe sepsis, small differences were detected in the plasma clearance of
53 Xigris with regard to age, gender, hepatic dysfunction, or renal dysfunction. Dose adjustment is
54 not required based on these factors alone or in combination (*see PRECAUTIONS*).

55 *End stage renal disease* — Patients with end stage renal disease requiring chronic renal
56 replacement therapy were excluded from the Phase 3 study. In patients without sepsis undergoing
57 hemodialysis (n=6), plasma clearance (mean \pm SD) of Xigris administered on non-dialysis days
58 was 30 ± 8 L/hr. Plasma clearance of Xigris was 23 ± 4 L/hr in patients without sepsis
59 undergoing peritoneal dialysis (n=5). These clearance rates did not meaningfully differ from
60 those in normal healthy subjects (28 ± 9 L/hr) (n=190).

61 *Pediatrics* — Safety and efficacy have not been established in pediatric patients with severe
62 sepsis (*see INDICATIONS AND USAGE*), therefore no dosage recommendation can be made.
63 The pharmacokinetics of a dose of 24 mcg/kg/hr of Xigris appear to be similar in pediatric and
64 adult patients with severe sepsis.

65 *Drug-Drug Interactions* — Formal drug interactions studies have not been conducted.

66 **CLINICAL STUDIES**

67 The efficacy of Xigris was studied in an international, multi-center, randomized, double-blind,
68 placebo-controlled trial (PROWESS) of 1690 patients with severe sepsis.¹ Entry criteria included
69 a systemic inflammatory response presumed due to infection and at least one associated acute
70 organ dysfunction. Acute organ dysfunction was defined as one of the following: cardiovascular
71 dysfunction (shock, hypotension, or the need for vasopressor support despite adequate fluid
72 resuscitation); respiratory dysfunction (relative hypoxemia ($\text{PaO}_2/\text{FiO}_2$ ratio <250));
73 renal dysfunction (oliguria despite adequate fluid resuscitation); thrombocytopenia (platelet
74 count $<80,000/\text{mm}^3$ or 50% decrease from the highest value the previous 3 days); or metabolic
75 acidosis with elevated lactic acid concentrations. Patients received a 96-hour infusion of Xigris at
76 24 mcg/kg/hr or placebo starting within 48 hours after the onset of the first sepsis induced organ
77 dysfunction. Exclusion criteria encompassed patients at high risk for bleeding (*see*
78 **CONTRAINDICATIONS and WARNINGS**), patients who were not expected to survive for
79 28 days due to a pre-existing, non-sepsis related medical condition, HIV positive patients whose
80 most recent CD_4 count was $\leq 50/\text{mm}^3$, patients on chronic dialysis, and patients who had
81 undergone bone marrow, lung, liver, pancreas, or small bowel transplantation.

82 The primary efficacy endpoint was all-cause mortality assessed 28 days after the start of study
83 drug administration. Prospectively defined subsets for mortality analyses included groups defined
84 by APACHE II score² (a score designed to assess risk of mortality based on acute physiology and
85 chronic health evaluation, see <http://www.sfar.org/scores2/scores2.html>), protein C activity, and
86 the number of acute organ dysfunctions at baseline. The APACHE II score was calculated from
87 physiologic and laboratory data obtained within the 24-hour period immediately preceding the
88 start of study drug administration irrespective of the preceding length of stay in the Intensive
89 Care Unit.

90 The study was terminated after a planned interim analysis due to significantly lower mortality
91 in patients on Xigris than in patients on placebo (210/850, 25% versus 259/840, 31% $p=0.005$,
92 see Table 1).

93 Baseline APACHE II score, as measured in PROWESS, was correlated with risk of death;
94 among patients receiving placebo, those with the lowest APACHE II scores had a 12% mortality
95 rate, while those in the 2nd, 3rd, and 4th APACHE quartiles had mortality rates of 26%,
96 36%, and 49%, respectively. The observed mortality difference between Xigris and placebo was

97 limited to the half of patients with higher risk of death, i.e., APACHE II score ≥ 25 , the 3rd and
 98 4th quartile APACHE II scores (Table 1). The efficacy of Xigris has not been established in
 99 patients with lower risk of death, e.g., APACHE II score < 25 .
 100

Table 1: 28-Day All-Cause Mortality for All Patients and for Subgroups Defined by APACHE II Score^a

	Xigris Total N ^b	N ^c (%)	Placebo Total N ^b	N ^c (%)	Absolute Mortality Difference (%)	Relative Risk (RR)	95% CI for RR
Overall	850	210 (25)	840	259 (31)	-6	0.81	0.70, 0.93
APACHE II quartile (score)							
1st + 2nd (3-24)	436	82 (19)	437	83 (19)	0	0.99	0.75, 1.30
3rd + 4th (25-53)	414	128 (31)	403	176 (44)	-13	0.71	0.59, 0.85

^a For more information on calculating the APACHE II score, see: <http://www.sfar.org/scores2/scores2.html>

^b Total N=Total number of patients in group.

^c N=Number of deaths in group.

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104

105 Of measures used, the APACHE II score was most effective in classifying patients by risk of
 106 death within 28 days and by likelihood of benefit from Xigris, but other important indicators of
 107 risk or severity also supported an association between likelihood of Xigris benefit and risk of
 108 death. Absolute reductions in mortality of 2%, 5%, 8%, and 11% with Xigris were observed for
 109 patients with 1, 2, 3, and 4 or more organ dysfunctions, respectively. Similarly, each of the
 110 three major components of the APACHE II score (acute physiology score, chronic health score,
 111 age score) identified a higher risk population with larger mortality differences associated with
 112 treatment. That is, the reduction in mortality was greater in patients with more severe physiologic
 113 disturbances, in patients with serious underlying disease predating sepsis, and in older patients.

114 Treatment-associated reductions in mortality were observed in patients with normal protein C
 115 levels and those with low protein C levels. No substantial differences in Xigris treatment effects
 116 were observed in subgroups defined by gender, ethnic origin, or infectious agent.

117 Long-Term Follow-Up

118 The one-year survival status was provided for 93% of the 1690 PROWESS subjects. For
 119 patients with APACHE II score ≥ 25 , mortality was lower for the Xigris group compared to the
 120 placebo group through 90-days (41% versus 52%; RR: 0.72, 95% CI: 0.59-0.88) and through
 121 1 year (48% versus 59%; RR: 0.73, 95% CI: 0.60-0.88). However, for patients with APACHE II
 122 score < 25 , mortality was higher for the Xigris group compared to the placebo group through
 123 90-days (27% versus 25%; RR: 1.09, 95% CI: 0.84-1.42) and through 1 year (35% versus 28%;
 124 RR: 1.24, 95% CI: 0.97-1.58).

125 INDICATIONS AND USAGE

126 Xigris is indicated for the reduction of mortality in adult patients with severe sepsis (sepsis
 127 associated with acute organ dysfunction) who have a high risk of death (e.g., as determined by
 128 APACHE II, *see CLINICAL STUDIES*).

129 Safety and efficacy have not been established in adult patients with severe sepsis and lower risk
 130 of death (*see CLINICAL STUDIES, Long-Term Follow-Up*). Safety and efficacy have not
 131 been established in pediatric patients with severe sepsis.

132 CONTRAINDICATIONS

133 Xigris increases the risk of bleeding. Xigris is contraindicated in patients with the following
 134 clinical situations in which bleeding could be associated with a high risk of death or significant
 135 morbidity:

- 136 • Active internal bleeding

- 137 • Recent (within 3 months) hemorrhagic stroke
- 138 • Recent (within 2 months) intracranial or intraspinal surgery, or severe head trauma
- 139 • Trauma with an increased risk of life-threatening bleeding
- 140 • Presence of an epidural catheter
- 141 • Intracranial neoplasm or mass lesion or evidence of cerebral herniation
- 142 Xigris is contraindicated in patients with known hypersensitivity to drotrecogin alfa (activated)
- 143 or any component of this product.

144 WARNINGS

145 Bleeding is the most common serious adverse effect associated with Xigris therapy. Each
 146 patient being considered for therapy with Xigris should be carefully evaluated and anticipated
 147 benefits weighed against potential risks associated with therapy.

148 Certain conditions, many of which led to exclusion from the Phase 3 trial, are likely to increase
 149 the risk of bleeding with Xigris therapy. For individuals with one or more of the following
 150 conditions, the increased risk of bleeding should be carefully considered when deciding whether
 151 to use Xigris therapy:

- 152 • Concurrent therapeutic dosing of heparin to treat an active thrombotic or embolic event (*see*
 153 **PRECAUTIONS, Drug Interactions**)
- 154 • Platelet count $<30,000 \times 10^6/L$, even if the platelet count is increased after transfusions
- 155 • Prothrombin time-INR >3.0
- 156 • Recent (within 6 weeks) gastrointestinal bleeding
- 157 • Recent administration (within 3 days) of thrombolytic therapy
- 158 • Recent administration (within 7 days) of oral anticoagulants or glycoprotein IIb/IIIa
 159 inhibitors
- 160 • Recent administration (within 7 days) of aspirin >650 mg per day or other platelet inhibitors
- 161 • Recent (within 3 months) ischemic stroke (*see* **CONTRAINDICATIONS**)
- 162 • Intracranial arteriovenous malformation or aneurysm
- 163 • Known bleeding diathesis
- 164 • Chronic severe hepatic disease
- 165 • Any other condition in which bleeding constitutes a significant hazard or would be
 166 particularly difficult to manage because of its location

167 Should clinically important bleeding occur, immediately stop the infusion of Xigris. Continued
 168 use of other agents affecting the coagulation system should be carefully assessed. Once adequate
 169 hemostasis has been achieved, continued use of Xigris may be reconsidered.

170 Xigris should be discontinued 2 hours prior to undergoing an invasive surgical procedure or
 171 procedures with an inherent risk of bleeding. Once adequate hemostasis has been achieved,
 172 initiation of Xigris may be reconsidered 12 hours after major invasive procedures or surgery or
 173 restarted immediately after uncomplicated less invasive procedures.

174 PRECAUTIONS

175 Laboratory Tests

176 Most patients with severe sepsis have a coagulopathy that is commonly associated with
 177 prolongation of the activated partial thromboplastin time (APTT) and the prothrombin time (PT).
 178 Xigris may variably prolong the APTT. Therefore, the APTT cannot be reliably used to assess
 179 the status of the coagulopathy during Xigris infusion. Xigris has minimal effect on the PT and the
 180 PT can be used to monitor the status of the coagulopathy in these patients.

181 Immunogenicity

182 As with all therapeutic proteins, there is a potential for immunogenicity. The incidence of
 183 antibody development in patients receiving Xigris has not been adequately determined, as the
 184 assay sensitivity is inadequate to reliably detect all potential antibody responses. One patient in

185 the Phase 2 trial developed antibodies to Xigris without clinical sequelae. One patient in the
186 Phase 3 trial who developed antibodies to Xigris developed superficial and deep vein thrombi
187 during the study, and died of multi-organ failure on day 36 post-treatment but the relationship of
188 this event to antibody is not clear.

189 Xigris has not been readministered to patients with severe sepsis.

190 **Drug Interactions**

191 Drug interaction studies with Xigris have not been performed in patients with severe sepsis.
192 However, since there is an increased risk of bleeding with Xigris, caution should be employed
193 when Xigris is used with other drugs that affect hemostasis (*see CLINICAL*
194 **PHARMACOLOGY, WARNINGS**). Approximately 2/3 of the patients in the Phase 3 study
195 received either prophylactic low dose heparin (unfractionated heparin up to 15,000 units/day) or
196 prophylactic doses of low molecular weight heparins as indicated in the prescribing information
197 for the specific products. Concomitant use of prophylactic low dose heparin did not appear to
198 affect safety, however, its effects on the efficacy of Xigris have not been evaluated in an adequate
199 and well-controlled clinical trial.

200 **Drug/Laboratory Test Interaction**

201 Because Xigris may affect the APTT assay, Xigris present in plasma samples may interfere
202 with one-stage coagulation assays based on the APTT (such as factor VIII, IX, and XI assays).
203 This interference may result in an apparent factor concentration that is lower than the true
204 concentration. Xigris present in plasma samples does not interfere with one-stage factor assays
205 based on the PT (such as factor II, V, VII, and X assays).

206 **Carcinogenesis, Mutagenesis, Impairment of Fertility**

207 Long-term studies in animals to evaluate potential carcinogenicity of Xigris have not been
208 performed.

209 Xigris was not mutagenic in an *in vivo* micronucleus study in mice or in an *in vitro*
210 chromosomal aberration study in human peripheral blood lymphocytes with or without rat liver
211 metabolic activation.

212 The potential of Xigris to impair fertility has not been evaluated in male or female animals.

213 **Pregnancy Category C**

214 Animal reproductive studies have not been conducted with Xigris. It is not known whether
215 Xigris can cause fetal harm when administered to a pregnant woman or can affect reproduction
216 capacity. Xigris should be given to pregnant women only if clearly needed.

217 **Nursing Mothers**

218 It is not known whether Xigris is excreted in human milk or absorbed systemically after
219 ingestion. Because many drugs are excreted in human milk, and because of the potential for
220 adverse effects on the nursing infant, a decision should be made whether to discontinue nursing
221 or discontinue the drug, taking into account the importance of the drug to the mother.

222 **Pediatric Use**

223 The safety and effectiveness of Xigris have not been established in the age group newborn
224 (38 weeks gestational age) to 18 years. The efficacy of Xigris in adult patients with severe sepsis
225 and high risk of death cannot be extrapolated to pediatric patients with severe sepsis.

226 **Geriatric Use**

227 In clinical studies evaluating 1821 patients with severe sepsis, approximately 50% of the
228 patients were 65 years or older. No overall differences in safety or effectiveness were observed
229 between these patients and younger patients.

230

ADVERSE REACTIONS**231 Bleeding**

232 Bleeding is the most common adverse reaction associated with Xigris.

233 In the Phase 3 study, serious bleeding events were observed during the 28-day study period in
 234 3.5% of Xigris-treated and 2.0% of placebo-treated patients, respectively. The difference in
 235 serious bleeding between Xigris and placebo occurred primarily during the infusion period and is
 236 shown in Table 2.¹ Serious bleeding events were defined as any intracranial hemorrhage, any
 237 life-threatening bleed, any bleeding event requiring the administration of ≥ 3 units of packed red
 238 blood cells per day for 2 consecutive days, or any bleeding event assessed as a serious adverse
 239 event.

240

Table 2: Number of Patients Experiencing a Serious Bleeding Event by Site of Hemorrhage During the Study Drug Infusion Period^a In PROWESS¹

	Xigris N=850	Placebo N=840
Total	20 (2.4%)	8 (1.0%)
Site of Hemorrhage		
Gastrointestinal	5	4
Intra-abdominal	2	3
Intra-thoracic	4	0
Retroperitoneal	3	0
Intracranial	2	0
Genitourinary	2	0
Skin/soft tissue	1	0
Other ^b	1	1

241 ^a Study drug infusion period is defined as the date of initiation of study drug to the date of study drug
 242 discontinuation plus the next calendar day.

243 ^b Patients requiring the administration of ≥ 3 units of packed red blood cells per day for 2 consecutive days without
 244 an identified site of bleeding.

245

246 In PROWESS, 2 cases of intracranial hemorrhage (ICH) occurred during the infusion period
 247 for Xigris-treated patients and no cases were reported in the placebo patients. The incidence of
 248 ICH during the 28-day study period was 0.2% for Xigris-treated patients and 0.1% for
 249 placebo-treated patients. ICH has been reported in patients receiving Xigris in non-placebo
 250 controlled trials with an incidence of approximately 1% during the infusion period. The risk of
 251 ICH may be increased in patients with risk factors for bleeding such as severe coagulopathy and
 252 severe thrombocytopenia (*see WARNINGS*).

253 In PROWESS, 25% of the Xigris-treated patients and 18% of the placebo-treated patients
 254 experienced at least one bleeding event during the 28-day study period. In both treatment groups,
 255 the majority of bleeding events were ecchymoses or gastrointestinal tract bleeding.

256 Other Adverse Reactions

257 Patients administered Xigris as treatment for severe sepsis experience many events which are
 258 potential sequelae of severe sepsis and may or may not be attributable to Xigris therapy. In
 259 clinical trials, there were no types of non-bleeding adverse events suggesting a causal association
 260 with Xigris.

261

OVERDOSAGE

262 There is no known antidote for Xigris. In case of overdose, immediately stop the infusion and
 263 monitor closely for hemorrhagic complications (*see Human Pharmacokinetics*).

264 In postmarketing experience there have been a limited number of medication error reports of
 265 excessive rate of Xigris infusion for short periods of time (median 2 hours). No unexpected
 266 adverse events were observed during the overdose period. However, this information is
 267 insufficient to assess whether Xigris overdose is associated with an increased hemorrhage risk
 268 beyond that observed with Xigris administered at the recommended dose.

269 **DOSAGE AND ADMINISTRATION**

270 Xigris should be administered intravenously at an infusion rate of 24 mcg/kg/hr (based on
 271 actual body weight) for a total duration of infusion of 96 hours. Dose adjustment based on
 272 clinical or laboratory parameters is not recommended (*see PRECAUTIONS*).

273 If the infusion is interrupted, Xigris should be restarted at the 24 mcg/kg/hr infusion rate. Dose
 274 escalation or bolus doses of Xigris are not recommended.

275 In the event of clinically important bleeding, immediately stop the infusion (*see WARNINGS*).

276 **Preparation and Administration Instructions:**

- 277 1. Use appropriate aseptic technique during the preparation of Xigris for intravenous
- 278 administration.
- 279 2. Calculate the approximate amount of Xigris needed based upon the patient's actual body
- 280 weight and duration of this infusion period. The maximum duration of infusion from one
- 281 preparation step is 12 hours. Multiple infusion periods will be needed to cover the entire
- 282 96-hour duration of administration.

$$283 \text{ mg of Xigris} = (\text{patient weight, kg}) \times 24 \text{ mcg/kg/hr} \times (\text{hours of infusion}) \div 1000$$

284
 285 Round the actual amount of Xigris to be prepared to the nearest 5 mg increment to avoid
 286 discarding reconstituted Xigris.

- 288 3. Determine the number of vials of Xigris needed to make up this amount.
- 289 4. Reconstitute each vial of Xigris with Sterile Water for Injection, USP. The 5 mg vials must
- 290 be reconstituted with 2.5 mL; the 20 mg vials with 10 mL. Slowly add the Sterile Water for
- 291 Injection, USP to the vial and avoid inverting or shaking the vial. Gently swirl each vial
- 292 until the powder is completely dissolved. The resulting Xigris concentration of the solution
- 293 is 2 mg/mL.
- 294 5. Xigris contains no antibacterial preservatives; the intravenous solution should be prepared
- 295 immediately after reconstitution of the Xigris in the vial(s). If the vial of reconstituted
- 296 Xigris is not used immediately, it may be held at controlled room temperature 20° to 25°C
- 297 (68° to 77°F), but must be used within 3 hours.
- 298 6. Inspect the reconstituted Xigris in the vials for particulate matter and discoloration before
- 299 further dilution. Do not use vials if particulate matter is visible or the solution is
- 300 discolored.
- 301 7. Xigris should be administered via a dedicated intravenous line or a dedicated lumen of a
- 302 multilumen venous catheter. The ONLY other solutions that can be administered through
- 303 the same line are 0.9% Sodium Chloride Injection, USP; Lactated Ringer's Injection, USP;
- 304 Dextrose Injection, USP; and Dextrose and Sodium Chloride Injection, USP.
- 305 8. Avoid exposing Xigris solutions to heat and/or direct sunlight. Studies conducted at the
- 306 recommended concentrations indicate the Xigris intravenous solution to be compatible
- 307 with glass infusion bottles, and infusion bags and syringes made of polyvinylchloride,
- 308 polyethylene, polypropylene, or polyolefin.

309 **Dilution and Administration Instructions for an Intravenous Infusion Pump Using** 310 **an Infusion Bag:**

- 311 1. Complete Preparation and Administration steps 1-8, then complete the next 6 steps.

- 312 2. The solution of reconstituted Xigris must be further diluted into an infusion bag containing
 313 0.9% Sodium Chloride Injection, USP to a final concentration of between 0.1 mg/mL and
 314 0.2 mg/mL. Bag volumes between 50 mL and 250 mL are typical.
 315 3. Confirm that the intended bag volume will result in an acceptable final concentration.

316
 317 Final concentration, mg/mL = (actual Xigris amount, mg) ÷ (bag volume, mL)

318
 319 If the calculated final concentration is not between 0.1 mg/mL and 0.2 mg/mL select a
 320 different bag volume and recalculate the final concentration.

- 321 4. Slowly withdraw the reconstituted Xigris solution from the vial(s) and add the
 322 reconstituted Xigris into the infusion bag of 0.9% Sodium Chloride Injection, USP. When
 323 injecting the Xigris into the infusion bag, direct the stream to the side of the bag to
 324 minimize the agitation of the solution. Gently invert the infusion bag to obtain a
 325 homogeneous solution. Do not transport the infusion bag using mechanical transport
 326 systems such as pneumatic-tube systems that may cause vigorous agitation of the solution.
 327 5. Calculate the actual duration of the infusion period for the diluted Xigris.

328
 329 Infusion period, hours = (actual Xigris amount, mg) X 1000 ÷ (patient weight, kg) ÷
 330 24 mcg/kg/hr

- 331
 332 6. Account for the added volume of reconstituted Xigris (0.5 mL per mg of Xigris used) and
 333 the volume of bag saline solution removed (if saline solution is removed prior to adding
 334 the reconstituted Xigris).

335
 336 Final bag volume, mL = starting bag volume, mL + reconstituted Xigris volume, mL - saline
 337 volume removed (if any), mL

338
 339 Calculate the actual infusion rate of the diluted Xigris.

340
 341 Infusion rate, mL/hr = final bag volume, mL ÷ infusion period, hours

- 342
 343 7. After preparation, the intravenous solution should be used at controlled room temperature
 344 20° to 25°C (68° to 77°F) within 14 hours. If the intravenous solution is not administered
 345 immediately, the solution may be stored refrigerated 2° to 8°C (36° to 46°F) for up to
 346 12 hours. If the prepared solution is refrigerated prior to administration, **the maximum**
 347 **time limit for use of the intravenous solution, including preparation, refrigeration,**
 348 **and administration, is 24 hours.**

349
 350 **Dilution and Administration Instructions for a Syringe Pump:**

- 351 1. Complete Preparation and Administration steps 1-8, then complete the next 7 steps.
 352 2. The solution of reconstituted Xigris must be further diluted with 0.9% Sodium Chloride
 353 Injection, USP to a final concentration of between 0.1 mg/mL and 1.0 mg/mL.
 354 3. Confirm that the intended solution volume will result in an acceptable final concentration.

355
 356 Final concentration, mg/mL = (actual Xigris amount, mg) ÷ (solution volume, mL)

357
 358 If the calculated final concentration is not between 0.1 to 1.0 mg/mL select a different
 359 volume and recalculate the final concentration.

- 360 4. Slowly withdraw the reconstituted Xigris solution from the vial(s) into a syringe that will
 361 be used in the syringe pump. Into the same syringe, slowly withdraw 0.9% Sodium

362 Chloride Injection, USP to obtain the desired final volume of diluted Xigris. Gently invert
 363 and/or rotate the syringe to obtain a homogenous solution.

364 5. Calculate the actual duration of the infusion period for the diluted Xigris.

365

366 Infusion period, hours = (actual Xigris amount, mg) X 1000 ÷ (patient weight, kg) ÷
 367 24 mcg/kg/hr

368

369 6. Calculate the actual infusion rate of the diluted Xigris.

370

371 Infusion rate, mL/hr = (solution volume, mL) ÷ (infusion period, hours)

372

373 7. When administering Xigris using a syringe pump at low concentrations (less than
 374 approximately 0.2 mg/mL) with low flow rates (less than approximately 5 mL/hr), the
 375 infusion set must be primed for approximately 15 minutes at a flow rate of approximately
 376 5 mL/hr.

377 8. After preparation, the intravenous solution should be used at controlled room temperature
 378 20° to 25°C (68° to 77°F) within 12 hours. **The maximum time limit for use of the**
 379 **intravenous solution, including preparation and administration, is 12 hours.**

380

HOW SUPPLIED

381 Xigris is available in 5 mg and 20 mg single-use vials containing sterile, preservative-free,
 382 lyophilized drotrecogin alfa (activated).

Vials:

383 5 mg Vials

384 NDC 0002-7559-01

385 20 mg Vials

386 NDC 0002-7561-01

387 Xigris should be stored in a refrigerator 2° to 8°C (36° to 46°F). Do not freeze. Protect
 388 unconstituted vials of Xigris from light. Retain in carton until time of use. Do not use beyond
 389 the expiration date stamped on the vial.

391

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