APPENDIX A

AMGEN'S ASSERTED PROCESS CLAIMS

'868 PATENT, CLAIMS 1 AND 2

U.S. PATENT NO. 5,441,868 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A process for the production of a glycosylated erythropoietin polypeptide	**"A process for the production of an erythropoietin polypeptide having one or more carbohydrate groups attached to the polypeptide"**	"glycosylated erythropoietin polypeptide": • "A protein is a linear molecule usually consisting of more than fifty amino acids linked together in a specific sequence. … As the name suggests, a glycoprotein is a protein that has undergone glycosylation, a process whereby groups (or chains) of carbohydrate (or sugar) residues chemically attach to the protein as the protein is synthesized." *Amgen, Inc. v. Hoechst Marion Roussel, Inc.* (*"Amgen v. HMR"*), 126 F. Supp. 2d at 123 (footnote omitted) (stated in context of '933 patent). • Patent: Appendix B at 6:66-7:2; 7:10-11; 7:35–38; 9:15–18; 10:9-64; 12:8–12; 29:1-7; 33:9-13; 35:55–36:5; 36:23-30; 36:54-37:2; Examples 7, 8, 10; *see also* 12:8-12; 16:55-59; 16:66-17:2. • Prosecution History: Exhibit 14 at AM-ITC-00925257 (U.S. Appln. 675,298 File History, 10/3/86 Amendment (Paper 12) at 4 (defining EPO in terms of a product having a specific primary amino acid configuration); Exhibit 8 at AM-ITC-00899474 (U.S. Appln. 100,197 File History, 4/28/99 Amendment (Paper No. 33) at 4 (describing product as being open-ended)). "A process for the production of a glycosylated erythropoietin polypeptide" • Patent: Appendix B at 10:9-41; 37:28-51; Examples 7, 8, 10. • Prosecution History: Exhibit 7 at AM-ITC-00953214 (U.S.

U.S. PATENT NO. 5,441,868 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		Appln. 113,179 File History, 5/26/88 Second Preliminary Amendment (Paper 8) at 10). • Consider also, regarding asserted '698 claims (having the same preamble as the asserted '868 claims): "The '698 patent is directed to a process for producing EPO in host cells using recombinant DNA techniques." *Amgen v. HMR*, 457 F.3d at 1317. Claims 4 and 6 of the '698 patent do not qualify as step-plus-function claims. *Amgen v. HMR*, 339 F. Supp. 2d at 258.
having the in vivo biological property of causing bone marrow cells to increase production of reticulocytes and red blood cells	**"causing bone marrow cells to increase production of reticulocytes and red blood cells in the body"**	• Patent: Appendix B at 6:20-34; 10:9-15; 33:19-31. • Prosecution History: Exhibit 7 at AM-ITC-00953219-223 (U.S. Appln. 113,179 File History, 5/28/88 Second Preliminary Amendment (Paper No. 8) at 15-19 (distinguishing prior art on ground that product is an obligate glycoprotein (a protein that must be glycosylated to be biologically active in vivo)); *see also* Exhibit 15 at AM-ITC-00953275-277 (U.S. Appln. 113,179 File History, 9/27/88 Response (Paper No. 14) at 3-5); Exhibit 16 at AM-ITC-00953641 (U.S. Appln. 113,179 File History, 1/10/94 Amendment and Response (Paper No. 33) at 5); Exhibit 17 at AM-ITC-00953693 (U.S. Appln. 113,179 File History, 10/7/94 Amendment and Remarks (Paper No. 43) at 3).
comprising the steps of:	**"containing at least the following steps"**	• "a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Amgen v. HMR*,

U.S. PATENT NO. 5,441,868 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		314 F.3d at 1344-45.
(a) growing, under suitable nutrient conditions, mammalian host cells	**"growing, under conditions appropriate and conducive to mammalian host cell growth, cells from a warm-blooded animal, whose young are fed by milk secreted from mammary glands"**	"mammalian host cells": • "As a result, the Court determined that 'mammalian cells' are 'cells from a warm-blooded animal, whose young are fed by milk secreted from mammary glands.'" *Amgen v. HMR*, 126 F. Supp. 2d at 86. "growing, under suitable nutrient conditions, mammalian host cells": • Patent: Appendix B at 11:8-14; 27:8-53, Example 10. • Consider also, regarding asserted '698 claims (having the same preamble as the asserted '868 claims): "[T]his Court rules that claims 4 and 6 of the '698 patent, in referring to the "steps of: (a) *growing under suitable nutrient conditions . . . ,*" are not step-plus-function claims. . . " *Amgen v. HMR*, 339 F. Supp. 2d at 258.
transformed or transfected with an isolated DNA sequence encoding human erythropoietin; and	**"[said cells] receiving the purified genetic instructions for human erythropoietin; and"**	"transformed or transfected": • Patent: Appendix B at 2:3-3:37; 11:3-13; 11:19-67; Examples 6, 7, 10-12. "isolated DNA sequence encoding human erythropoietin": • With respect to "DNA encoding" (as set forth in the asserted '698 claims): "The Court construed 'DNA encoding' to mean 'the genetic instruction for.'" *Amgen v. HMR*, 339 F. Supp. 2d

U.S. PATENT NO. 5,441,868 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		at 251. • Patent: Appendix B at 1:18-23; 9:32-37; 11:20-29; 13:28-30; 21: 3-11; 29:11-15; 31:35-39; Example 5; Fig. 6. • Prosecution History: Exhibit 16 at AM-ITC-00953642-643 (U.S. Appln. 113,179 File History, 1/10/94 Amendment and Response (Paper No. 33) at 6-7).
(b) isolating said glycosylated erythropoietin polypeptide therefrom.	**"recovering in pure form said glycosylated erythropoietin polypeptide."**	• Patent: Appendix B at 6:60-7:62; 11:14-18; 28:29-32.

U.S. PATENT NO. 5,441,868 CLAIM 2		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The process according to claim 1		*See '868 claim 1 above.*
wherein said host cells are CHO cells.	**"A process according to claim 1 wherein the host cells are Chinese hamster ovary cells."**	*See '868 claim 1 above.* • "When exposed to Chinese hamster ovary ("CHO") cells . . ." *Amgen v. HMR*, 457 F.3d at 1299.

'698 PATENT, CLAIMS 4-9

U.S. PATENT NO. 5,618,698 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A process for the production of a glycosylated erythropoietin polypeptide	**"A process for the production of an erythropoietin polypeptide having one or more carbohydrate groups attached to the polypeptide"**	*See '868 claim 1 above.* • Consider also: Claims 4 and 6 of the '698 patent do not qualify as step-plus-function claims. *Amgen v. HMR*, 339 F. Supp. 2d at 258.
having the in vivo biological property of causing bone marrow cells to increase production of reticulocytes and red blood cells	**"causing bone marrow cells to increase production of reticulocytes and red blood cells in the body"**	*See '868 claim 1 above.*
comprising the steps of:	**"containing at least the following steps"**	*See '868 claim 1 above.*
a) growing, under suitable nutrient conditions, vertebrate cells comprising	**"growing, under conditions appropriate and conducive to vertebrate cell growth, cells originating from an animal having a segmented body or cartilaginous spinal cord, containing at least"**	"vertebrate cells": • Patent: Appendix B at 10:20-33; 10:41-48. "growing, under suitable nutrient conditions, vertebrate cells": *see '868 claim 1, above.* "comprising": *see '868 claim 1.*
promoter DNA, other than human erythropoietin	**"DNA sequences that can initiate transcription of a gene,**	• "Transcription of the gene is prompted by a promoter, a sequence of DNA that initiates transcription. *Id.* col. 2, 11. 4-6. The

U.S. PATENT NO. 5,618,698 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
promoter DNA,	**which DNA is not a human genomic EPO promoter DNA."**	promoter is typically located upstream of the gene to be transcribed." *Amgen v. HMR*, 457 F.3d at 1298. • Patent: Appendix B at 2: 3-15; 20:39-45; 21:3-9; 22: 19-27; 24:10-14; Examples 7B and 10. • Prosecution History: Exhibit 18 at AM-ITC-00942391 (U.S. Appln. 468,381 File History, 12/24/96 Second Preliminary Amendment and Terminal Disclaimer (Paper No. 9) at 9 (support for use of a non-EPO promoter and particularly a viral promoter is found in Examples 7B and 10)).
operatively linked to	**"[the promoter DNA] is linked to the EPO DNA in a way that maintains the capability of the promoter DNA to initiate transcription of the EPO DNA."**	• Patent: Appendix B at 22:19-27; 24:10-14; Examples 11 and 12. • Prosecution History: Exhibit 18 at AM-ITC-00942391 (U.S. Appln. 468,381 File History, 12/24/96 Second Preliminary Amendment and Terminal Disclaimer (Paper No. 9) at 9 (providing that Example 7B, 10, 11, and 12 describe EPO-encoding DNA operatively linked to promoter DNA)).
DNA encoding the mature erythropoietin amino acid sequence of FIG. 6; and	**"the genetic instructions for the 166 amino acid residues (+1 through +166) specified in Fig. 6"**	• "Thus, the Court interprets the claims to require the use of cells containing DNA that provides the genetic instructions, the codons, for a 166 amino acid sequence." *Amgen v. HMR*, 339 F. Supp. 2d at 251-252. • "The subject matter in issue relates to a purified and isolated DNA sequence encoding for human erythropoietin (EPO), a protein consisting of 165 amino acids which is naturally produced in the body and which stimulates the production of red blood cells." *Fritsch v. Lin* (USPTO Interference 102,096), 21 U.S.P.Q.2d

U.S. PATENT NO. 5,618,698 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		1731, 1733 (BPAI 1991). • Patent: Appendix B 1:18-23; 9:32-37; 11:20-29; 13:28-30; 21: 3-11; 29:11-15; 31:35-39; Example 5; Fig. 6.
b) isolating said glycosylated erythropoietin polypeptide expressed by said cells.	**"recovering in pure form said glycosylated erythropoietin polypeptide expressed by said cells"**	*See '868 claim 1 above.*

U.S. PATENT NO. 5,618,698 CLAIM 5		
Claim Limitations	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The process of claim 4		*See '698 claim 4 above.*
wherein said promoter DNA is viral promoter DNA.	**"The process of claim 4 where the promoter DNA originates from a virus**"	*See '698 claim 4 above* ("promoter DNA, other than human erythropoietin promoter DNA").

U.S. PATENT NO. 5,618,698 CLAIM 6		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A process for the production of a glycosylated erythropoietin polypeptide	*See '698 claim 4 above.*	*See '868 claim 1 above.*
having the in vivo biological property of causing bone marrow cells to increase production of reticulocytes and red blood cells	*See '698 claim 4 above.*	*See '868 claim 1 above.*
comprising the steps of:	**"containing at least the following steps"**	*See '868 claim 1 above.*
a) growing, under suitable nutrient conditions, vertebrate cells comprising	*See '698 claim 4 above.*	*See ''868 claim 1 above.*
amplified DNA encoding the mature erythropoietin amino acid sequence of FIG. 6; and	**"amplified" means "an increased number of copies relative to other DNA sequences in the genome"** **"DNA encoding the mature erythropoietin amino acid sequence of FIG. 6,"** means **"the genetic instructions for the 166 amino acid residues**	"amplified": • Patent: Appendix B at 14:22-25; 21:52-55; 26:19-65; 29:43-54; 29:63-65; Example 10. • Prosecution History: Exhibit 18 at AM-ITC-00942391-392 (U.S. Appln. 468,381 File History; 12/24/96 Second Preliminary Amendment and Terminal Disclaimer (Paper No. 9) at 9-10 (support for reference to DNA amplification and use of amplified marker gene is found in Example 10, 26:19-37)).

U.S. PATENT NO. 5,618,698 CLAIM 6		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	(+1 through +166) specified in Fig. 6"	"DNA encoding the mature erythropoietin amino acid sequence of FIG. 6": *See '698 claim 4 above.*
b) isolating said glycosylated erythropoietin polypeptide expressed by said cells.	*See '698 claim 4 above.*	*See '868 claim 1 above.*

U.S. PATENT NO. 5,618,698 CLAIM 7		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The process of claim 6		*See '868 claim 6 above.*
wherein said vertebrate cells further comprise amplified marker gene DNA.	**"The process of claim 6 where the vertebrate cells also include a gene which codes for a substance used to identify or select cells having a desirable characteristic."**	*See '698 claim 6 above* ("amplified DNA").

U.S. PATENT NO. 5,618,698 CLAIM 8		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The process of claim 7		*See '698 claim 7 above.* • "[T]he Court rules that claim 7 of the '349 patent does not contain a step-plus-function limitation. . ." *Amgen v. HMR*, 339 F. Supp. 2d at 261.
wherein said amplified marker gene DNA is Dihydrofolate reductase (DHFR) gene DNA.	**"The process of claim 7 where the amplified marker gene DNA is DHFR, which is a specific enzyme which selects for survival of cells."**	*See '698 claim 6 above.*

U.S. PATENT NO. 5,618,698 CLAIM 9		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The process according to claims 2, 4 and 6		*See above re '698 claims 4 and 6.*
wherein said cells are mammalian cells.	**"The process according to claims 2, 4 and 6 wherein the cells from a warm-blooded animal, whose young are fed by milk secreted from mammary glands"**	*See '868 claim 1 above* (CHO cells, mammalian cells).

'349 PATENT, CLAIM 7 (as it depends on 1)

U.S. PATENT NO. 5,756,349 CLAIM 7		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A process for producing erythropoietin	**"a process for producing erythropoietin"**	*See generally '868 claim 1.* "erythropoietin": • "The rEPO so recovered has the same or similar amino acid sequences and biological properties as naturally occurring human EPO, but differs in its 'glycosylation,' *i.e.*, in the patterns of branched carbohydrate chains that attach to the protein. '933 patent, col. 10, lines 34-41." *Amgen v. HMR*, 314 F.3d at 1321-22. • Patent: Appendix B at 10:9-15; 10:28-33; 10:50-64; 13:50-53.
comprising the step of	**"containing at least the steps**	*See '868 claim 1 above.*
culturing, under suitable nutrient conditions, vertebrate cells according to claim 1, 2, 3, 4, 5 or 6.	**"the act of growing in vitro, under appropriate conditions, cells originating from an animal having a segmented body or cartilaginous spinal cord, according to claim 1, 2, 3, 4, 5 or 6"**	*See '868 claim 1 above, see also* Appendix B at 10:41-48; 26:24-28; 27:8-17; 27:20-25. *See '349 claim 1 below* (independent claim).

U.S. PATENT NO. 5,756,349 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
Vertebrate cells	*See '349 claim 7 above.*	*See '698 claim 4 above.*
which can be propagated in vitro and	**"which can be grown in culture outside of a living body"**	***See*** *868 claim 1 above, see also* Appendix B at 10:41-48; 26:24-28; 27:8-17; 27:20-25.
which are capable upon growth in culture of producing erythropoietin in the medium of their growth in excess of 100 U of erythropoietin per 10^6 cells in 48 hours as determined by radioimmunoassay,	**"[the vertebrate cells] are able to secrete erythropoietin into their growth environment in excess of 100 U of erythropoietin per million cells in 48 hours as determined by radioimmunoassay"**	• Patent: Appendix B at 10:41-49; Examples 2.B; 8, 10; Figure 1.
said cells comprising non-human DNA sequences which control transcription of DNA encoding human erythropoietin.	**"said cells containing DNA sequences, which are not part of the human genome, but can initiate and regulate the process of transcription of the genetic instructions for human erythropoietin."**	"comprising": *See '868 claim 1 above.* "non-human DNA sequences which control transcription": • Patent: Appendix B at 2:3-15; 20:34-21:19; 21:3-9; 22:19-40; 24:10-14; Examples 6, 7, 10; Fig. 6. *Compare also,*'868 claims 1, 4, and 5 (defining "DNA encoding human erythropoietin" to include by cDNA and genomic DNA).

U.S. PATENT NO. 5,756,349 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		• Prosecution History: Exhibit 19 at AM-ITC-00942736 (U.S. Appln. 468,369 File History, 2/14/97 Office Action (Paper No. 10) at 3 (rejecting claims without any limitation to exogenous DNA in the cells as not enabled and providing that only cells transformed with exogenous DNA that encodes EPO are enabled)); Exhibit 20 at AM-ITC-00942777 (U.S. Appln. 468,369 File History, 5/13/97 Amendment and Response (Paper No. 13) at 2 (showing that when Amgen added the limitation that the cells comprise non-human DNA sequences which control transcription of DNA encoding human EPO, the claims were allowed)).

Appendix A

AMGEN'S ASSERTED PRODUCT AND METHOD OF USE CLAIMS

'933 PATENT, CLAIMS 3, 7-9, 11-12, AND 14

U.S. PATENT NO. 5,547,933 CLAIM 3		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A non-naturally occurring glycoprotein product of the expression in a mammalian host cell of an exogenous DNA sequence comprising	**"a protein not occurring in nature having carbohydrate groups attached to the polypeptide that is produced by a mammalian cell transformed or transfected with a DNA sequence that does not have its origin from the genome of the host"** **"containing at least"**	"non-naturally occurring" "As to the '080 patent, the 'non-naturally occurring' limitation in claims 3 and 4 merely prevents Amgen from claiming the human EPO produced in the natural course. By limiting its claims in this way Amgen simply avoids claiming specific subject matter that would be unpatentable under §101. This court has endorsed this approach, recognizing that patentees can use *negative* limitations such as 'non-human' and 'non-natural' to avoid rejection under § 101." *Amgen v. HMR*, 314 F.3d at 1329. "'non-naturally occurring' means 'not occurring in nature.'" *Amgen v. HMR*, 126 F. Supp. 2d at 91. • Patent: Appendix B at 1:18-24; 6:60-7-23; 10:50-64; 11:29-41; 13:50-57; 22:60-67; 24:1-14; 24:58-63; 26:19-65; 28:33-29:7; Examples 1 and 10. • Prosecution History: Exhibit 21 at AM-ITC-00941539 (U.S. Appln. 487,774 File History, 10/18/95 Interview Summary at 1 (providing that applicant intends to amend the claims to include negative limitation, *i.e.*, non-naturally occurring--examiner favorably impressed)); Exhibit 22 at AM-ITC-00941550 (U.S. Appln. 487,774 File History, 12/20/95 Second Preliminary Amendment and Remarks at 7 (providing that non-naturally occurring operates to distinguish from all prior art references relating to EPO isolates)).

U.S. PATENT NO. 5,547,933 CLAIM 3		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		"glycoprotein product" • "A protein is a linear molecule usually consisting of more than fifty amino acids linked together in a specific sequence. … As the name suggests, a glycoprotein is a protein that has undergone glycosylation, n34 a process whereby groups (or chains) of carbohydrate (or sugar) residues chemically attach to the protein as the protein is synthesized." *Amgen v. HMR*, 126 F. Supp. 2d at 123. "of the expression in a mammalian host cell of an exogenous DNA sequence" • Patent: Appendix B at 10:15-31; 11:8-14; 11:19-61; 13:53-58; Examples 6, 7, 10. "comprising": *See '868 claim 1 above.*
a DNA sequence encoding human erythropoietin	**"genetic instructions for human erythropoietin"**	*See '868 claim 1* ("transformed or transfected with an isolated DNA sequence encoding human erythropoietin"). • Consider also: In the context of the '698 Patent claims: "Thus, the Court interprets the claims to require the use of cells containing DNA that provides the genetic instructions, the codons, for a 166 amino acid sequence." *Amgen v. HMR*, 339 F. Supp. 2d at 251-252. "The court noted that this construction applied any time DNA encoding was used throughout the various claims.'" *Amgen v. HMR*, 339 F. Supp. 2d at 251, n.55 (re '698 claims). "To be clear, in this context, the Court interprets the claim to

U.S. PATENT NO. 5,547,933 CLAIM 3		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		be referring to the coding sequence, the piece of DNA that actually specifies the amino acid sequence—not the regulatory sequences that determine when and under what conditions the cells copy the gene into RNA. [FN56] … Thus, the Court interprets the claims to require the use of cells containing DNA that provides the genetic instructions, the codons, for a 166 amino acid sequence." *Amgen v. HMR,* 339 F. Supp. 2d at 251-52 (re '698 claims). "The Court notes that it did not construe the term to include the splicing instructions for putting the codons together." *Amgen v. HMR*, 339 F. Supp. 2d at 262, n.72 (re '698 claims). The Court finds "DNA encoding" is not indefinite. *Amgen v. HMR*, 339 F. Supp. 2d at 264.
said product possessing the in vivo biological property of causing bone marrow cells to increase production of reticulocytes and red blood cells.	**"[said product] causing bone marrow cells to increase production of reticulocytes and red blood cells in the body"**	*See '868 claim 1 above.*

U.S. PATENT NO. 5,547,933 CLAIM 7		
Claim Limitations	**Preliminary Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The glycoprotein product according to claim 3, 4, 5, or 6		*See '933 claim 3 above.*
wherein the host cell is a non-human mammalian cell.	**"The glycoprotein product according to claim 3, 4, 5, or 6 wherein the host cell is not a human mammalian host cell**	*See '868 claim 1 above (CHO cells, mammalian cells).*

U.S. PATENT NO. 5,547,933 CLAIM 8		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
The glycoprotein product according to claim 7		*See '933 claim 7 above.*
wherein the non-human mammalian cell is a CHO cell.	**"The glycoprotein product of claim 7 wherein the cell is a Chinese hamster ovary cell"**	*See '868 claim 1 above (CHO cells, mammalian cells).*

U.S. PATENT NO. 5,547,933 CLAIM 9		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A pharmaceutical composition	**"A composition suitable for administration to humans as a pharmaceutical"**	• Patent: Appendix B at 12:1-7; 33:39-48.
comprising	**"containing at least"**	*See '868 claim 1 above.*
an effective amount of a glycoprotein product effective for erythropoietin therapy according to claim 1, 2, 3, 4, 5 or 6 and	**"a quantity of a glycoprotein product according to claim 1, 2, 3, 4, 5 or 6 that produces a result that in and of itself helps to heal or cure a patient in the class of patients listed in the specification, column 33 lines 31 through 36: patients generally requiring blood transfusions and including trauma victims, surgical patients, renal disease patients including dialysis patients, and patients with a variety of blood composition affecting disorders, such as hemophilia,**	• Patent: Appendix B at 12:1-7; 33:14-54. • Prosecution History: Exhibit 11 at AM-ITC-00941460 (U.S. Appln. 202,874 File History, 8/16/94 Office Action (Paper No. 38) at 5 (rejecting a claim to a "pharmaceutical composition comprising an effective amount of a glycoprotein product . . ." as indefinite for failing to identify the effect); Exhibit 12 at AM-ITC-00941511, -513, and -516 (U.S. Appln. 202,874 File History, 2/22/95 Amendment and Request for Reconsideration (Paper No. 42) at 4, 6, and 9 (amending claim to include limitation "effective for erythropoietin therapy" and stating that such amendment moots rejection)).

U.S. PATENT NO. 5,547,933 CLAIM 9		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	sickle cell disease, physiologic anemias, and the like."	
a pharmaceutically acceptable diluent, adjuvant or carrier.	**"a diluent, adjuvant or carrier that is suitable for administration to humans"**	• "The court found that the specification described and enabled various possible diluents and carriers and provided specific information on effective dosages and therapeutic effect in mice." *Amgen v. HMR*, 314 F. 3d at 1335. • Patent: Appendix B at 12:1-7; 33:61-34:31.

U.S. PATENT NO. 5,547,933 CLAIM 11		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A method for treating a kidney dialysis patient	**"A method to treat a patient needing dialysis treatment"**	• Patent: Appendix B at 33:29-39.
which comprises	**"containing at least"**	*See '868 claim 1 above.*
administering a pharmaceutical composition of claim 9 in an amount effective to increase the hematocrit level of said patient.	**"administering a pharmaceutical composition of claim 9 in an amount effective to increase the hematocrit level of said patient"**	• Patent: Appendix B at 12:1-7; 33:14-54; 33:19-39.

U.S. PATENT NO. 5,547,933 CLAIM 12		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A pharmaceutical composition	**"A composition suitable for administration to humans as a pharmaceutical"**	*See '933 claim 9 above.*
comprising	**"containing at least"**	*See '868 claim 1 above.*
an effective amount of glycoprotein product effective for erythropoietin therapy according to claim 7	**"a quantity of a glycoprotein product according to claim 7 that produces a result that in and of itself helps to heal or cure a patient in the class of patients listed in the specification, column 33 lines 31 through 36: patients generally requiring blood transfusions and including trauma victims, surgical patients, renal disease patients including dialysis patients, and patients with a variety of blood composition affecting disorders, such as hemophilia, sickle cell disease, physiologic anemias, and the like."**	"effective amount of glycoprotein product effective for erythropoietin therapy": *see '933 claim 9 above.* "according to claim 7": *see '933 claim 7 above.*

U.S. PATENT NO. 5,547,933 CLAIM 12		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
and a pharmaceutically acceptable diluent, adjuvant or carrier.	**"a diluent, adjuvant or carrier that is suitable for administration to humans"**	*See '933 claim 9 above.*

U.S. PATENT NO. 5,547,933 CLAIM 14		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A method for treating a kidney dialysis patient	**"A method to treat a patient needing dialysis treatment"**	*See '933 claim 11 above.*
which comprises	**"containing at least"**	*See '868 claim 1 above.*
administering a pharmaceutical composition of claim 12 in an amount effective to increase the hematocrit level of said patient.[1]	**"administering a pharmaceutical composition of claim 12 in an amount effective to increase the hematocrit level of said patient"**	*See '868 claim 1 above.*

[1] Claim 14 of the '933 patent as originally printed contained a typographical error reading "an amount effective to increase the hematocrit level of said *product*." This error has been corrected through a Certificate of Correction.

'422 PATENT, CLAIM 1

U.S. PATENT NO. 5,955,422 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A pharmaceutical composition	**"A composition suitable for administration to humans"**	*See '933 claim 9 above (pharmaceutical composition).*
comprising	**"containing at least"**	*See '868 claim 1.*
a therapeutically effective amount of human erythropoietin	**"therapeutically effective" means either:**[2] **(a) "therapeutically effective amount is one that elicits any one or all of the effects often associated with in vivo biological activity of natural EPO, such as those listed in the specification, column 33, lines 16 through 22: stimulation of reticulocyte response, development of ferrokinetic effects (such as plasma iron turnover effects**	"therapeutically effective amount": (a): *Please see:* • *Amgen v. HMR*, 457 F.3d at 1303. • Patent: Appendix B at 33:19-31. (b): *Please see:* • *Amgen v. HMR*, 339 F. Supp. 2d at 244-46. • Patent: Appendix B at 12:1-7; 6:20-49; 33:19-39; 33:52-58. • Prosecution History: *Amgen v. HMR*, 339 F. Supp. 2d 202 at 239-244; Exhibit 23 at AM-ITC-00941168 (U.S. Appln. 202,874 File History, 06/05/89 Amendment Under Rule 116 (Paper No. 11) at 4); Exhibit 3 at AM-ITC-

[2] Construction (a) reflects the claim construction adopted by the Federal Circuit in *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1303 (Fed. Cir. 2006). Amgen, however, has not exhausted its right to appeal that construction and reserves the right to propose claim construction (b) at trial.

U.S. PATENT NO. 5,955,422 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	and marrow transit time effects), erythrocyte mass changes, stimulation of hemoglobin C synthesis and, as indicated in Example 10, increasing hematocrit levels in mammals." **or** **(b) "a quantity that produces a result that in and of itself helps to heal or cure. A therapeutically effective amount is one that shares the in vitro biological activity of natural EPO, elicits in vivo biological effects such as those listed in the specification, column 33, lines 24-28: stimulation of reticulocyte response, development of ferrokinetic effects(such as plasma iron turnover effects and marrow transit time effects), erythrocyte mass changes, stimulation of hemoglobin C synthesis, and, as indicated in Example 10, increases the hematocrit level**	00941182 (U.S. Appln. 202,874 File History, 06/20/89 Examiner's Action (Paper No. 13) at 7), Exhibit 24 at AM-ITC-00899160-161 (U.S. Appln. 100,197, 06/01/94 Examiner's Action (Paper No. 20) at 3-4); Exhibit 25 at AM-ITC-00899171-172 (U.S. Appln. 100,197, 12/1/94 Request for Reconsideration (Paper No. 23) at 2-3). "human erythropoietin": *See '868 claim 1 above."*

U.S. PATENT NO. 5,955,422 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	in mammals. Therapeutically effective is to be interpreted as being therapeutically effective with respect to the class of patients listed in the specification, column 33 lines 31 through 36: patients generally requiring blood transfusions and including trauma victims, surgical patients, renal disease patients including dialysis patients, and patients with a variety of blood composition affecting disorders, such as hemophilia, sickle cell disease, physiologic anemias, and the like." **"human erythropoietin" means "a protein having the amino acid sequence of human EPO, such as the amino acid sequence of EPO isolated from human urine"**	
and a pharmaceutically acceptable diluent, adjuvant	**"and a diluent, adjuvant, or carrier that is suitable for**	*See '933 Claim 9 above.*

U.S. PATENT NO. 5,955,422 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
or carrier,	**administration to humans"**.	
wherein said erythropoietin is purified from mammalian cells grown in culture.	**"wherein the human erythropoietin originates from and is obtained in substantially homogeneous form from mammalian cells or mammalian cell culture medium."**	"Purified from mammalian cells grown in culture": • "This Court interpreted 'purified from mammalian cells grown in culture' to mean purified to substantial homogeneity. *Amgen v. HMR*, 126 F. Supp.2d at 89." *Amgen v. HMR*, 339 F. Supp. 2d at 319 n.136. • "…the [district] court read the phrase "mammalian cells grown in culture" as a whole to encompass purification techniques from the cells *or* the cell culture medium. *Id.* at 88-89, 57 USPQ2d at 1460- 61." *Amgen v. HMR*¸ 314 F.3d at 1347-48. • "As to the '422 patent, the limitation 'purified from mammalian cells grown in culture' in claim 1 clearly limits the source of the EPO used in the claimed 'pharmaceutical composition.' The limitation only speaks to the source of the EPO and does not limit the process by which the EPO is expressed. Rather, the claim is broadly drawn to a 'pharmaceutical composition' having certain elements, one of those being EPO 'purified from mammalian cells in culture.' This reading is in line with the district court's construction and, again, TKT directs us to no error." *Amgen v. HMR*, 314 F.3d at 1329-1330. • "We do not hold that these limitations lack meaning, only that they mean just what they say. Accordingly, they limit only the source from which the EPO is obtained, not the method by which it is produced." *Amgen v. HMR*, 314 F.3d at 1330. • Patent: Appendix B at 28:1-32; Examples 7, 10.

U.S. PATENT NO. 5,955,422 CLAIM 1		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
		• Prosecution History: Exhibit 8 at AM-ITC-00899473-474 (U.S. Appln. 100,197 File History, 4/28/99 Amendment (Paper No. 33) at 4-5 (providing that "grown in culture" excludes human EPO of the prior art and means the EPO-producing cells are grown *in vitro*; stating that "purified from mammalian cells in culture" is a source limitation and contrasting '422 claims 1 and 2)); Exhibit 9 at AM-ITC-00899180 (U.S. Appln. 100,197 File History, 3/3/95 Amendment (Paper No. 25) at 2 (structurally distinguishing rEPO and uEPO by relying on the recombinant process by which Amgen made EPO to structurally distinguish rEPO from uEPO)).

'080 PATENT, CLAIMS 3, 4, AND 6

U.S. PATENT NO. 5,621,080 CLAIM 3		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A non-naturally occurring erythropoietin glycoprotein having the in vivo biological activity of causing bone marrow cells to increase production of reticulocytes and red blood cells	**"an EPO protein not occurring in nature with attached carbohydrate groups to the polypeptide chain that causes bone marrow cells to increase production of reticulocytes and red blood cells in the body"**	"A non-naturally occurring erythropoietin glycoprotein": *See '933 claim 3.* "having the in vivo biological activity of causing bone marrow cells to increase production of reticulocytes and red blood cells": *See '868 claim 1.*
wherein said erythropoietin glycoprotein comprises the mature erythropoietin amino acid sequence of FIG. 6	**"wherein said erythropoietin glycoprotein comprises the 166 amino acid residues (+1 through +166) specified in Fig. 6."**	"said erythropoietin glycoprotein": *see above.* "comprises": *see '868 claim 1.* "mature erythropoietin amino acid sequence of FIG. 6": • "Fig. 6 thus serves to identify the primary structural conformation (amino acid) sequence of mature human EPO as including 166 specified amino acid residues…" *Amgen v. HMR*, 314 F.3d at 1343 (citing *Amgen v. HMR*, 126 F. Supp. 2d at 86-87). • Patent: Appendix B at 10:64-11:2; 14:13-21; 19:34-42; 21:3-19; 21:27-37; 31:35-38; 35:10-17. • Prosecution History: Exhibit 26 at AM-ITC-00941998, n. 1(U.S. Appln. 468,556 File History, 12/20/96 Third Preliminary Amendment and Terminal Disclaimer (Paper No. 6) at 9, n. 1 (providing that support for reference to the "mature" sequence is found in the specification at 21: 3-6)).

U.S. PATENT NO. 5,621,080 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A pharmaceutical composition	**"A composition suitable for administration to humans"**	*See '933 claim 9 above (pharmaceutical composition).*
comprising	**"containing at least"**	*See '868 claim 1 above.*
a therapeutically effective amount [of]	**"therapeutically effective" means either:**[3] **(a) "therapeutically effective amount is one that elicits any one or all of the effects often associated with in vivo biological activity of natural EPO, such as those listed in the specification, column 33, lines 16 through 22: stimulation of reticulocyte response, development of ferrokinetic effects (such as plasma iron turnover effects and marrow transit time**	*See '933 claim 9 above.*

[3] Construction (a) reflects the claim construction adopted by the Federal Circuit in *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1303 (Fed. Cir. 2006). Amgen, however, has not exhausted its right to appeal that construction and reserves the right to propose claim construction (b) at trial.

U.S. PATENT NO. 5,621,080 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	effects), erythrocyte mass changes, stimulation of hemoglobin C synthesis and, as indicated in Example 10, increasing hematocrit levels in mammals." **or** **(b) "a quantity that produces a result that in and of itself helps to heal or cure. A therapeutically effective amount is one that shares the in vitro biological activity of natural EPO, elicits in vivo biological effects such as those listed in the specification, column 33, lines 24-28: stimulation of reticulocyte response, development of ferrokinetic effects(such as plasma iron turnover effects and marrow transit time effects), erythrocyte mass changes, stimulation of hemoglobin C synthesis, and, as indicated in Example 10, increases the hematocrit level in mammals. Therapeutically**	

U.S. PATENT NO. 5,621,080 CLAIM 4		
Claim Limitation	**Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
	effective is to be interpreted as being therapeutically effective with respect to the class of patients listed in the specification, column 33 lines 31 through 36: patients generally requiring blood transfusions and including trauma victims, surgical patients, renal disease patients including dialysis patients, and patients with a variety of blood composition affecting disorders, such as hemophilia, sickle cell disease, physiologic anemias, and the like."	
an erythropoietin glycoprotein product according to claim 1, 2, or 3.	**"an glycoprotein product according to claim 1, 2, or 3"**	*See '868 claim 1 above.* *See '080 claim 3 above.*

U.S. PATENT NO. 5,621,080 CLAIM 6		
Claim Limitations	**Preliminary Claim Construction**	**Primary Intrinsic Support for Construction (including previous constructions by the courts)**
A method for treating a kidney dialysis patient	**"A method to treat a patient needing dialysis treatment"**	*See '933 claim 11 above.*
which comprises	**"containing at least"**	*See '868 claim 1 above.*
administering a pharmaceutical composition of claim 4 in an amount effective to increase the hematocrit level of said patient.	**"administering a pharmaceutical composition of claim 4 in an amount effective to increase the hematocrit level of said patient"**	"pharmaceutical composition of claim 4": *See '080 claim 4 above (independent claim).* "administering a pharmaceutical composition . . . in an amount effective to increase the hematocrit level of a patient": *See '933 claim 11 above.*