

REFERENCES

1. Graber SE, Krantz SB. Erythropoietin and the control of red cell production. *Ann Rev Med* 1978; 29: 51-66.
2. Lacombe C, Dasilva JL, Fournier JG, Wendling F, Casedevall N, Camilleri JP, Bariety J, Varet B, Tambourin P. Peritubular cells are the site of erythropoietin synthesis in the murine hypoxic kidney. *J Clin Invest* 1988; 81: 620-23.
3. Jacobs K, Shoemaker C, Rudersdorf R, Neill SD, Kaufman RJ, Mufson A, Seehra J, Jones SS, Hewick R, Fritsch EF, Kawakita M, Shimizu T, Miyake T. Isolation and characterization of genomic and cDNA clones of human erythropoietin. *Nature* 1985; 313: 806-10.
4. Adamson JW. Regulation of red blood cell production. *Am J Med* 1996; 101: S4-6.
5. Law ML, Cai G, Lin F, Wei Q, Huang S, Hartz JH, Morse H, Lin C, Jones C, Kao F. Chromosomal assignment of the human erythropoietin gene and its DNA polymorphism. *Proc Natl Acad Sci USA* 1986; 83: 6920-4.
6. Jacobson LO, Marks EK, Gaston EO, Glodwassser E. Studies on erythropoiesis. XI. Reticulocyte response of transfusion-induced polycythaemic mice to anemic plasma from nephrectomized mice to and plasma from nephrectomized rats exposed to low oxygen. *Blood* 1959; 14: 635-43.

7. Zanjani ED, Peterson EN, Gordon AS, Wasserman LR. Erythropoietin production in the fetus: role of the kidney and maternal anemia. *J Lab Clin Med* 1974; 83: 281-87.
8. Wide L, Bengtsson C, Birgegård G. Circadian rhythm of erythropoietin in human serum. *Br J Haematol* 1989; 72: 85-90.
9. Krzyzanski K, Jusko WJ, Wacholtz MC, Minton N, Cheung WK. Pharmacokinetic and pharmacodynamic modeling of recombinant human erythropoietin after multiple subcutaneous doses in healthy subjects. *Eur J Pharm Sci* 2005; 26: 295-306.
10. Foley RN, Parfrey PS, Harnett JD, Kent GM, Murray DC, Barre PE. The impact of anemia on cardiomyopathy, morbidity, and mortality in end-stage renal disease. *Am J Kidney Dis* 1996; 28: 53-61.
11. Levin A, Singer J, Thompson CR, Ross H, Lewis M. Prevalent left ventricular hypertrophy in the predialysis population: identifying opportunities for intervention. *Am J Kidney Dis* 1996; 27: 347-54.
12. Eschbach JW. The anemia of chronic renal failure. Pathophysiology and the effects of recombinant erythropoietin. *Kidney Int* 1989; 35: 134-48.
13. Beguin Y. A risk-benefit assessment of epoetin in the management of anemia associated with cancer. *Drug Safety* 1998; 19: 269-82.
14. De Marchi S, Pirisi M, Ferraccioli GF. Erythropoietin and the anemia of chronic diseases. *Clin Exp Rheumatol* 1993; 11: 429-44.
15. Pincus T, Olsen NJ, Russell IJ, Wolfe F, Harris ER, Schnitzer TJ, Boccagno JA, Krantz SB. Multicenter study of recombinant human erythropoietin in correction of anemia in rheumatoid arthritis. *Am J Med* 1990; 89: 161-8.

16. Kim DJ, Kim YM, Yun YS, Ahn CW, Cha BS, Song YD, Lim SK, Kim KR, Hahnt JS, Huh KB, Lee HC. Therapeutic effect of recombinant human erythropoietin on anemia with erythropoietin deficiency in diabetic patients. *Diabet Med* 2003; 20: 661-4.
17. Borsook HA, Graybiel A, Keighley G, Windsor E. Polycythemic response in normal adult rats to a nonprotein plasma extract from anemic rabbits. *Blood* 1954; 9: 734-42.
18. Plzak LF, Fried W, Jacobson LO, Bethard WF. Demonstration of stimulation of erythropoiesis by plasma from anemic rats using ^{59}Fe . *J Lab Clin Med* 1955; 46: 671-78.
19. Goldwasser E, Kung CKH. Purification of erythropoietin. *Proc Natl Acad Sci USA* 1971; 68: 697-8.
20. Miyake T, Kung CK, Goldwasser E. Purification of human erythropoietin. *J Biol Chem.* 1997; 252: 5558-64.
21. Lin FK, Suggs S, Lin CH, Bowne JK, Smalling R, EgrieJC, Chen KK, Fox GM, Martin F, Stabinsky Z, Badrawi SM, Lai P, Goldwasser E. Cloning and expression of the human erythropoietin gene. *Proc Natl Acad Sci USA* 1985; 85: 7580-4.
22. Winearls CG, Oliver DO, Pippard MJ, Reid C, Downing MR, Cotes PM. Effect of human erythropoietin derived from recombinant DNA on the anemia of patients maintained by chronic hemodialysis. *Lancet* 1986; 22: 1175-8.
23. Ludwig H, Fritz E, Kotzman H, Hocker P, Gisslinger H, Barnas U. Erythropoietin treatment of anemia associated with multiple myeloma. *N Engl J Med* 1990; 322: 1693-9.

24. Henry DH, Bowers P, Romano MT, Provenzano R. Epoetin alfa. Clinical evolution of a pleiotropic cytokine. *Arch Intern Med* 2004; 164: 262-76.
25. Jelkmann W, Wagner K. Beneficial and ominous aspects of the pleiotropic action of erythropoietin. *Ann Hematol* 2004; 83: 673-86.
26. Li F, Chong ZZ, Maiese K. Erythropoietin on the tightrope: balancing neuronal and vascular protection between intrinsic and extrinsic pathways. *Neurosignals* 2004; 13: 265-89.
27. Deicher R, Horl WH. Differentiating factors between erythropoiesis-stimulating agents: a guide to selection for anemia of chronic kidney disease. *Drugs* 2004; 64: 499-509.
28. European Medicines Agency, *Evaluation of Medicines for Human Use* [Online]. Available: <http://www.emea.europa.eu/pdfs/human/biosimilar/9452605en.pdf> (26 September 2007).
29. Lee IH, Shin SK, Kang SW, Noh HJ, Seo BJ, Park HC, Choi KH, Ha SK, Lee HY, Han DS, Lee EY, Kang DH, Choi GB, Yoon KI. Phase III Clinical Trial Evaluating Efficacy and Safety of Recombinant Human Erythropoietin (Epokine®) in Hemodialysis Patients. *Korean J Nephrol.* 1998; 17(3): 466-75.
30. Song HY, Yoon HS, Kang SW, Choi KH, Ha SK, Lee HY, Han DS. Comparative Prospective Study of Intravenously and Subcutaneously Administered Recombinant Human Erythropoietin (Epokine®) in End-Stage Renal Disease Patients: A Phase IV Single Center Study. *Korean J Nephrol.* 2002; 21(2): 190-8.

31. Kim DJ, Kim SK, Kim HJ, Kim YM, Yun YS, Ahn CW, Cha BS, Song YD, Lim SK, Kim KR, Lee HC, Huh KB. Therapeutic Effect of Recombinant Human Erythropoietin on Anemia with Erythropoietin Deficiency in Early Diabetic Nephropathy. *J Korean Diabetes Assoc.* 2001; 25(5): 364-73.
32. Dordal MS, Wang FF, Goldwasser E. The role of carbohydrate in erythropoietin action. *Endocrinology* 1985; 116: 2293-9.
33. Cheetham JC, Smith DM, Aoki KH, Stevenson JL, Hoeffel TJ, Syed RS, Egrie J, Harvey TS. NMR structure of human erythropoietin and a comparison with its receptor bound conformation. *Nat Struct Biol* 1998; 5: 861-6.
34. Storring PL, Tiplady RJ, Gaines Das RE, Rafferty B, Mistry YG. Lectin-binding assays for the isoform of human erythropoietin: comparison of urinary and four recombinant erythropoietins. *J Endocrinol* 1996; 150: 401-12.
35. Kendall RG. Erythropoietin. *Clin Lab Haem* 2001; 23: 71-80.
36. Spivak JL, Hogans BB. The in vivo metabolism of recombinant human erythropoietin in rat. *Blood* 1989; 73: 90-9.
37. Jelkmann W. 2006. Recombinant erythropoietins – the role of glycosylation in receptor binding, action and degradation [Online]. Available: <http://www.business-briefings.com/pdf/1599/jelkmann.pdf> (11 June 2007).
38. Storring PL, Tiplady RJ, Gaines Das RE, Stenning BE, Lamikanra A, Rafferty B, Lee J. Epoetin alfa and beta differ in their erythropoietin isoform compositions and biological properties. *Br J Haematol* 1998; 100: 79-89.
39. Yoshimura A, Arai K. Physician education: The erythropoietin receptor and signal transduction. *Oncologist* 1996; 1: 337-9.

40. D' Andrea AD, Lodish HF, Wong GG. Expression cloning of murine erythropoietin receptor. *Cell* 1989; 57: 277-85.
41. Damen J, Mui AL, Hughes P, Humphries K, Krystal G. Erythropoietin-induced tyrosine phosphorylations in a high erythropoietin receptor-expressing lymphoid cell line. *Blood* 1992; 80: 1923-32.
42. Linnekin D, Evans GA, D' Andrea AD, Farrar WL. Association of the erythropoietin receptor with protein tyrosine kinase activity. *Proc Natl Acad Sci USA* 1992; 89: 6237-41.
43. Gross M, Goldwasser E. On the mechanism of erythropoietin-induced differentiation. IX. Induces synthesis of 9s ribonucleic acid and of hemoglobin. *J Biol Chem* 1971; 246: 2480-6.
44. Koury MJ, Bondurant MC. Maintenance by erythroid protein of viability and maturation of murine erythroid precursor cells. *J Cell Physiol* 1988; 137: 65-74.
45. Darling RJ, Kuchibhotla U, Glaesner W, Micanovic R, Witcher DR, Beals JM. Glycosylation of erythropoietin affects receptor binding kinetics: role of electrostatic interactions. *Biochemistry* 2002; 41: 14524-31.
46. Elliott S, Egrie J, Browne J, Lorenzini T, Busse L, Rogers N, Ponting I. Control of rHuEPO biological activity: the role of carbohydrate. *Exp Hematol* 2004; 32: 1146-55.
47. McMahon FG, Vargas R, Ryan M, Jain AK, Abels RI, Perry B, Smith IL. Pharmacokinetics and effects of recombinant human erythropoietin after intravenous and subcutaneous injections in healthy volunteers. *Blood* 1990; 76(9): 1718-22.

48. Jelkmann W. The enigma of the metabolic fate of circulating erythropoietin (Epo) in view of the pharmacokinetics of the recombinant drugs rhEPO and NESP. *Eur J Haematol* 2002; 69: 265-74.
49. Walrafen P, Verdier F, Kadri Z, Chretien S, Lacombe C, Mayeux P. Both proteasomes and lysosomes degrade the activated erythropoietin receptor. *Blood* 2005; 105: 600-8.
50. Verdier F, Walrafen P, Hubert N, Chretien S, Gisselbrecht S, Lacombe C, Mayeux P. Proteasomes regulate the duration of erythropoietin receptor activation by controlling down-regulation of cell surface receptors. *J Biol Chem* 2000; 275: 18375-81.
51. Rosses WF, Waldemann TA. The metabolism of erythropoietin in patients with anemia due to deficient erythropoiesis. *J Clin Invest* 1964; 43: 1348-54.
52. Fukuda MN, Sasaki H, Lopez L, Fukada M. Survival of recombinant erythropoietin in the circulation: The role of carbohydrates. *Blood* 1989; 73: 84-9.
53. Sytkowski AJ. Denaturation and renaturation of human erythropoietin. *Biochem Biophys Res Commun* 1980; 96: 143-9.
54. European best practice guidelines for the management of anemia in patients with chronic renal failure: Working Party for European Best Practice Guidelines for the Management of Anemia in Patients with Chronic Renal Failure. *Nephro Dial Transplant* 1999; 14 Suppl. 5: 1-50.
55. Eknoyan G, Levin NW, Eschbach JW, Golper TA, Owen WF, Schwab S, Steinberg EP. Continuous quality improvement: DOQI becomes K/DOQI and is updated. National Kidney Foundation's Dialysis Outcomes Quality Initiative. *Am J Kidney Dis* 2001; 37: 179-94.

56. Cheer SM, Wagstaff AJ. Epoetin beta: a review of its clinical use in the treatment of anemia inpatients with cancer. *Drugs* 2004; 64: 323-46.
57. Janssen-Cilag. Eprex® Epoetin alfa. Package leaflet.
58. Brown AL, Tucker B, Baker LRI, Raine AEG. Seizures related to blood transfusion and erythropoietin treatment in patients undergoing dialysis. *BMJ* 1989; 299: 1258-9.
59. Macdougall IC, Cavill I, Davies ME, Hutton RD, Coles GA, Williams JD. Subcutaneous recombinant erythropoietin in the treatment of renal anemia in CAPD patients. *Contrib Nephrol* 1989; 76: 219-26.
60. Kaushansky K, Kipps TJ. Hematopoietic agents; growth factors, minerals and vitamins. In: Brunton LL, Lazo JS, Parker KL, eds. *Goodman & Gilman's the pharmacological basis of therapeutics*. 11th ed., New York: McGraw-Hill Companies 2006: 1438.
61. Besarab A, Bolton KW, Browne JK, Egrie JC, Nissenson AR, Okamoto DM, Schwab SJ, Goodkin DA. The effects of normal as compared with low hematocrit in patients with cardiac disease who are receiving hemodialysis and epoetin. *N Engl J Med* 1998; 339: 584-90.
62. Sakaguchi M, Kaneda H, Inouye S. A case of anaphylaxis to gelatin included in erythropoietin products. *J Allergy Clin Immunol* 1999; 103: 349-50.
63. Schellekens H. Immunologic mechanisms of EPO-associated pure red cell aplasia. *Best Pract Res Clin Haematol* 2005; 18: 473-80.
64. Macdougall IC. Antibody-mediated pure red cell aplasia (PRCA): epidemiology, immunogenicity and risks. *Nephrol Dial Transplant* 2005; 20 suppl 4: 9-15.

65. R&D System Inc. Quantikine[®] IVD[®] Erythropoietin ELISA kit. Package Insert.
66. Schuirmann DJ. A comparison of two-one-sided tests procedure and the power approach for assessing the equivalence of average bioavailability. *J Pharmacokinet Biopharm* 1987; 15: 657-80.
67. Sauter R, Steinijans VW, Diletti E, Bohm A, Schultz HU. Presentation of results from bioequivalence studies. *Int J Clin Pharmacol Ther Toxicol* 1992; 30(Suppl 1): S7-30.
68. Lai PH, Everett R, Wang FF, Arakawa T, Goldwasser E. Structural characterization of human erythropoietin. *J Biol Chem* 1986; 261: 3116-21.
69. Sasaki H, Bothner B, Dell A, Fukuda M. Carbohydrate structure of erythropoietin expressed in Chinese hamster ovary cells by a human erythropoietin cDNA. *J Biol Chem* 1987; 262: 12059-76.
70. Halstenson CE, Macres M, Katz SA, Schnieders JR, Watanabe M, Sobota JT, Abraham PA. Comparative pharmacokinetics and pharmacodynamics of epoetin alfa and epoetin beta. *Clin Pharmacol Ther* 1991; 50: 702-12.
71. The Product Monograph for Eprex[®] [Online]. Available: http://www.janssen-ortho.com/JOI/pdf_files/Eprex_E.pdf (24 September 2007).
72. The Product Monograph for Recormon[®] [Online]. Available: <http://www.health.gov.il/units/pharmacy/trufot/alonim/1713.pdf> (24 September 2007).
73. Eckardt KU, Casadevall N. Pure red-cell aplasia due to anti-erythropoietin antibodies. *Nephrol Dial Transplant* 2003; 18: 865-9.

74. Kinoshita H, Ohishi N, Hiramatsu Y, Kato M, Ichikawa F, Okazaki A. Metabolic fate of rh-EPO pharmacokinetics and distribution following repeated intravenous administration of rh-EPO to rats. *J Clin Ther Med (Jpn)* 1990; 6: 598-606.
75. Comparative study of recombinant human erythropoietin products in dogs. Cheil Jedang Corporation. Data on file.
76. Storry PL, Gaines Das RE. The International Standard for Recombinant DNA-derived Erythropoietin: collaborative study of four recombinant DNA-derived erythropoietin and two highly purified human urinary erythropoietins. *J Endocrinol* 1992; 134: 459-84.
77. Rademacher TW, Parekh RB, Dwek RA. Glycobiology. *Ann Rev Biochem* 1988; 57: 785-838.
78. Cumming DA. Glycosylation of recombinant protein therapeutics: control and functional implications. *Glycobiology* 1991; 1: 115-30.
79. Storry PL, Zaidi AA, Mistry YG, Lindberg M, Stenning BE, Diczfalussy E. A comparison of preparations of highly purified human pituitary luteinizing hormone: differences in the luteinizing hormone potencies as determined by in vivo bioassays, in vitro bioassay and immunoassay. *Acta Endocrinol* 1982; 101: 339-47.
80. National Kidney foundation. K/DOQI Clinical practice guidelines for anemia of chronic kidney disease 2000. Guideline 11. *Am J Kidney Dis* 2001; 37(Suppl. 1): S182-238.