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PATENT

IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

Application of:)	"Production of
FU-KUEN LIN)	Erythropoietin"
Serial No: 675,298)	Group Art Unit 127
Filed: November 30, 1984)	Examiner - A. Tanenholtz

APPLICANT'S AMENDMENT AND REPLY
UNDER 37 C.F.R. §1.111 AND §1.115

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Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

This is in response to the Office Action dated February 5, 1987 in the above-identified application wherein substantially all prior rejections of pending claims 14, 15, 17-36, 58 and 61-72 were withdrawn, but wherein new grounds for rejection were advanced under 35 U.S.C. §§102, 103 and 112, and wherein all claims were "provisionally" rejected under 35 U.S.C. §101. Reconsideration and allowance of all claims is respectfully requested in view of the following amendments and remarks.

AMENDMENT

IN THE CLAIMS

Please cancel claims 14, 15, 17-36, 58 and 61-72 without prejudice and enter the following new claims 73-103.

--73. A purified and isolated DNA sequence for use in securing expression in a procaryotic or eucaryotic

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host cell of a polypeptide product having at least a part of the primary structural conformation and having a therapeutic activity of naturally-occurring erythropoietin, said DNA sequence selected from the group consisting of:

- (a) the DNA sequences set out in Figures 5 and 6 or their complementary strands;
- (b) DNA sequences which hybridize under stringent conditions to the DNA sequences defined in (a); and
- (c) DNA sequences which, but for the degeneracy of the genetic code, would hybridize under stringent conditions to the DNA sequences defined in (a) and (b).

74. A procaryotic or eucaryotic host cell transformed or transfected with a DNA sequence according to claim 73 in a manner allowing the host cell to express said polypeptide product.

75. A biologically functional circular plasmid or viral DNA vector including a DNA sequence according to claim 73.

76. A procaryotic or eucaryotic host cell stably transformed or transfected with a DNA vector according to claim 75.

77. A purified and isolated DNA sequence coding for procaryotic or eucaryotic host expression of a polypeptide having part or all of the primary structural conformation and having a therapeutic activity of erythropoietin.

A 7138

- 1 -

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88. A manufactured DNA sequence according to claim 84 and including one or more codons preferred for expression in yeast cells.
89. A manufactured DNA sequence according to claim 88, coding for expression of human species erythropoietin..
90. A manufactured DNA sequence according to claim 89 including the protein/coding region set forth in Figure 8.
91. A DNA sequence according to claim 77 covalently associated with a detectable label substance.
92. A DNA sequence according to claim 91 wherein the detectable label is a radiolabel.
93. A single-strand DNA sequence according to claim 91.
94. A biologically functional circular plasmid or viral DNA vector including a DNA sequence according to claim 77.
95. A procaryotic or eucaryotic host cell stably transformed or transfected with a DNA vector according to claim 94.
96. A purified and isolated DNA sequence coding for a polypeptide fragment or polypeptide analog of

A 7140

- 4 -
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naturally-occurring erythropoietin having a therapeutic activity of erythropoietin.

97. A biologically functional circular plasmid or viral DNA vector including a DNA sequence according to claim 96.

98. A procaryotic or eucaryotic host cell stably transformed or transfected with a DNA vector according to claim 97.

99. A DNA sequence according to claim 96 which is a manufactured sequence.

100. A DNA sequence coding for [Phe¹⁵]hEPO, [Phe⁴⁹]hEPO, [Phe¹⁴⁵]hEPO, [His⁷]hEPO, [Asn² des-Pro² through Ile⁶]hEPO, [~~des-Thr~~¹⁶³ through Arg¹⁶⁶]hEPO, or [~~Δ27-55~~]hEPO.

101. A biologically functional circular plasmid or viral DNA vector including a DNA sequence according to claim 100.

102. A procaryotic or eucaryotic host cell stably transformed or transfected with a DNA vector according to claim 101.

103. A purified and isolated DNA sequence as set out in Figures 5 or 6 or the complementary strand of such a sequence.--

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- 5 -

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CONCLUSION

The foregoing remarks are believed to establish that claims 73-103 are in condition for allowance and an early notice under 37 C.F.R. §1.311 is solicited.

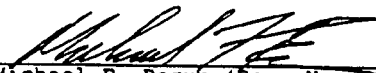
Consistent with Applicant's position, enclosed herewith pursuant to 37 C.F.R. §1.311(b) is an "Authorization to Charge Issue Fee to Deposit Account".

Applicant further notes that this case has been made special by the Commissioner (see Notice dated May 2, 1986) and, consistent with MPEP §1309, Applicant requests that this application be suitably "tagged" upon allowance of the claims to allow for priority in printing.

Respectfully submitted,

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A 7164

- 28 -

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