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Dr. Egrie also testified as to assays done in the period May-June, 1984 on samples of CHO cell-expressed rHuEPO designated H3 and B11 which she received from Dr. Browne's group (LR 53, 54). RIAs and in vitro assays were positive and tests by Dr. Dukes confirmed that these samples (H3 and B11) were active in vivo (LR 54, 55).

Egrie included in her testimony other work on recombinant monkey EPO expressed in COS and CHO cells by Dr. Browne's group which showed that this too was found to be in vivo biologically active. See LR 55-65. Dr. Dukes reported in vivo biological activity for COS cell media samples as early as December 23, 1983 (LR 57-59) and again on March 19, 1984 (LR 58) and for the CHO cell expressed monkey EPO samples in April, 1984 (LR 61-63). It was also shown that the COS and CHO cell-expressed monkey EPO was able to increase red blood cells in the period March 5, 1984 to June 6, 1984 (LR 63-65).

Dr. Egrie also confirmed the testimony of Drs. Browne and Lin that the indicated expression by Dr. Browne's group of in vivo biologically active recombinant using a mammalian host cell transfected with an isolated DNA sequence encoding human EPO involved each of the steps specified in the count (LR 67, 68).

Dr. Peter Dukes

Dr. Dukes, who is Director of Research, Children's Hospital of Los Angeles with the background and experience noted at LR 76-77 (see also Lin Exhibit 1) testified (LR 76-87) as to test work to determine in vivo biological activity which was carried out under his direction by his assistant Curtis Polk, at Dr. Egrie's request. He summarized his test

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results which showed in vivo activity for the samples received from Dr. Egrie in the period December, 1983 to June 1, 1984 with specific reference to Egrie samples H and L (December, 1983), E3 and E7 (March, 1984), H and L (March, 1984), A and pure A (April, 1984), and H3 and B11 (June, 1984) (LR 85).

The test work by Drs. Egrie and Dukes is summarized in Appendix 4. Of the samples tested by Dr. Dukes for in vivo biological activity, E3 and E7 were samples of culture media obtained by expression from COS cells transfected with Lin's human EPO gene. Samples H3 and B11 were media obtained by expression from CHO cells transfected with the human EPO gene. The other samples H, L and A were obtained by expression from COS or CHO cells transfected with the monkey EPO gene. All of these samples were found to be in vivo biologically active by Dr. Dukes. Accordingly, the Lin evidence shows the effective carrying out of the process of the count to obtain rHuEPO with a determination of in vivo biological activity by March, 1984 for the COS cell-expressed EPO and by June, 1984 for the CHO cell-expressed EPO.

Dr. Randolph Wall

The declaration evidence of Dr. Randolph Wall, Professor in the Department of Microbiology and Immunology at UCLA, was also presented by Lin (LR 91-102). This declaration was earlier filed in the motion period. The declaration includes Dr. Wall's comments distinguishing the invention at issue from Toole U.S. 4,757,006 and supports Lin's position on patentability (LR 95-100) and best mode (LR 100, 101).

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Dr. Fu-Kuen Lin

Dr. Lin (LR 1-6) confirmed that he was the inventor of the subject matter claimed in his application (LR 1) and that the experimental work on which the invention is based was done by himself or others, including Drs. Browne and Egrie, at his request (LR 1, 2). He specifically confirmed that the expression of EPO in 293, COS and CHO cells was done on his behalf (LR 3). This included expression with the approximately 5.4 kb BamHI-Hind III DNA subfragment within a lambda bacteriophage clone he called HE1 and which carried the complete human EPO coding sequence (LR 3). He confirmed that the expression of in vivo biologically active rHuEPO by culturing mammalian host cells transformed with a DNA sequence encoding EPO was shown to be successful by Dr. Egrie's determination that the expressed rHuEPO was biologically active in vivo (LR 3, 4). He also confirmed that the expression carried out by Dr. Browne and his assistant satisfied all features and limitations of the count (LR 5).

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Assistants

Ralph Smalling and Geri Trail, who assisted Dr. Browne, testified in confirmation of Browne's work (LR 32-36) while Jeri Lane and Cheryl Bradley confirmed Egrie (LR 70-75) and Curtiss Polk, Dr. Dukes' assistant, confirmed Dr. Dukes testimony (LR 87-90).

(H) The Fritsch et al Priority Evidence

Fritsch et al have alleged a conception of the invention, based on the concept of a probing strategy in December, 1981.

The evidence presented by Fritsch et al tracks closely with the factual history recorded by the District Court under the heading "c. Genetics Institute" in its decision (1750-1752). There is some added evidence amplifying Fritsch et al's alleged diligence towards isolating the DNA sequence in the period 1981 to 1983. However, this is of no relevance in view of the Federal Circuit's holding that conception of the purified and isolated DNA sequence encoding EPO must be simultaneous with its reduction to practice. No new evidence concerning conception has been presented. As GI's counsel succinctly stated the issue at trial day 7:

"there is no way on this God's earth that Dr. Fritsch could make a showing that he cloned first." (Tr. 7,125, lines 9-11, A7328)

It is also noted that Fritsch et al have presented no adequate evidence to establish that the recombinant product they ultimately expressed in the latter half of 1984¹⁰

¹⁰ Fritsch et al make no claim that they obtained in vivo biologically active recombinant human EPO before Lin. Their only argument is the alleged prior conception (December 1981) with diligence to a reduction to practice after Lin's reduction.

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had in vivo biological activity as required by the count. Dr. Dukes, who allegedly did some in vivo testing for Fritsch et al, did not testify as to any results. Fritsch et al have referred to activity data received from GI's exclusive Japanese licensee (Chugai). However, this data cannot be relied on as whatever work was done to obtain the data was done outside the U.S., i.e. in Japan (35 USC 104). Furthermore, no one directly involved with the Chugai work testified. Accordingly, the in vivo activity requirement of the count remains unproven by Fritsch et al. Hence, Fritsch et al have not established any actual reduction to practice.

III. ARGUMENT

(A) The Fritsch et al Brief Ignores the Federal Circuit Decision

This interference needs to be considered in the context of the law and facts established by the related infringement litigation which culminated in the Federal Circuit decision. The Fritsch et al brief at final hearing totally ignores the implications of that decision and treats Fritsch et al "Issues Presented for Decision" Nos. (1), (3) and (4) therein as though they had never been the subject of judicial analysis. The Board's consideration of these "issues" is greatly simplified when one takes into account the Federal Circuit's decision. Particularly significant in this respect is the determination referred to earlier that conception of the invention at issue in the litigation (the purified and isolated DNA sequence encoding human EPO as defined in Lin's '008 patent claim 2 and host cells including this sequence) requires reduction to practice i.e. that the claimed

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invention involves simultaneous conception and reduction to practice. See, for example, the Federal Circuit decision, 18 USPQ2d at 1021. See also the District Court's holding:

if any fact situation triggers the simultaneous conception and reduction to practice doctrine, this is it. (13 USPQ2d at 1760)

Fritsch et al admit that "priority turns upon the first conception of the purified and isolated gene", and, as conception requires reduction to practice, Fritsch et al have in essence acknowledged Lin's entitlement to priority in the present proceedings. Thus the arguments and evidence presented by Fritsch et al attempting to establish priority by showing a "conception" prior to Lin's acknowledged earlier reduction to practice of the purified and isolated EPO DNA sequence, are totally irrelevant. The same is true with respect to the Fritsch et al arguments regarding Section 103 patentability of Lin's claims and Lin's best mode. These issues were thoroughly considered by the District Court and Federal Circuit. Fritsch et al have made no effort in their brief to distinguish the facts pertinent to the priority and patentability issues (Section 103 and best mode) they present for final hearing from the facts considered by the District Court and Federal Circuit, and they clearly cannot do so.

(B) Summary of Lin's Position

The Lin position can be summarized as follows:

- (i) The Lin April 25, 1991, motion for judgment should be granted. The Federal Circuit has decided all of the fundamental issues between the parties as submitted by Fritsch et al for final

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hearing. The requested inventorship correction is mooted because the subject matter at issue is not patentable to either Fritsch et al as joint inventors or to Fritsch as sole inventor.

- (ii) The Federal Circuit affirmed the District Court opinion that the invention of a purified and isolated DNA sequence encoding EPO required simultaneous conception and reduction to practice. The undisputed findings are that Lin purified and isolated the EPO gene and carried out expression using mammalian host cells transformed with this gene to obtain in vivo biologically active human EPO before Fritsch et al have conceived the gene. The arguments by Fritsch et al that they conceived earlier than Lin, on the basis of their goal for obtaining the isolated EPO gene, whatever its identity, and their proposal of a possible probing method for finding the gene, and that they were diligent in reduction to practice of this proposal, were dealt with and dismissed by the Courts because Fritsch did not conceive a purified and isolated DNA sequence for EPO and a viable method for obtaining it until after Lin.
- (iii) While the count is directed to a process for preparing in vivo biologically active EPO using a mammalian host cell transfected or transformed with an isolated DNA sequence

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encoding human EPO, and the litigation was directed to the purified and isolated DNA sequence and host cells transfected or transformed thereby, it is evident that these are only different manifestations of the same invention as acknowledged by Fritsch et al in their Motion Q herein (and in Motion G in Interference No. 102,096). Clearly, the whole purpose and intent of the purified and isolated DNA sequence encoding human EPO (and host cells transfected therewith) at issue in the litigation was to express in vivo biologically active human EPO. Stated otherwise, the process language of the Lin patent claims at issue in the litigation ("encoding human EPO") is, for all intents and purposes, a description of the present count. One cannot be sure he has the sequence until he has successfully expressed in vivo biologically active human EPO. This involves culturing the transfected cells and isolating the expression product to determine whether or not it has the required in vivo activity. Hence, the priority holding in the litigation is directly on point, notwithstanding the different statutory class of claims involved.

- (iv) Lin's disclosure satisfies best mode requirements. The only arguments advanced by Fritsch et al in this interference are identical to those raised by Fritsch et al in the '096

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Interference. With respect to those arguments, the Federal Circuit affirmed the District Court ruling that Lin has satisfied best mode requirements.

- (v) The Lin claims are patentable over the prior art for the reasons noted in the District Court and Federal Circuit decisions. The Courts found Lin's EPO purified and isolated DNA sequence and host cells transformed with the same, to be patentable over the same prior art. The Courts' ruling applies with equal force to Lin's process claims.
- (vi) Lin is the inventor of the invention at issue. The inventor of the isolated EPO DNA sequence is clearly the inventor of the process for producing EPO involved in this interference. Fritsch et al admit as much by confirming that "priority turns upon the first conception of the purified and isolated human EPO gene." The process for producing EPO using Lin's purified and isolated gene was done at Lin's request.
- (vii) Fritsch et al should not be permitted to change inventorship or correct their preliminary statement. They have not shown that the original inventorship was inadvertently designated. They have also not proceeded diligently with the proposed amendment.

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(C) DISCUSSION OF THE ISSUES

(a) The Lin Motion for Judgment Should Be Granted

The Federal Circuit decision is dispositive of all issues raised by Fritsch et al for determination in this interference and the decision in res judicata as to those issues. In re Katz, 167 USPQ 487, 488 (CCPA 1970). Of the five "issues" proposed by Fritsch et al in their brief at final hearing, issue No. 1 (priority), No. 3 (best mode) and No. 4 (Section 103 patentability), which depend on exactly the same arguments raised in the '096 Interference and previously presented to the Courts, have been finally decided by the Federal Circuit adverse to Fritsch et al. Issue No. 2 (inventorship change) is mooted by the Federal Circuit decision as it does not matter whether Fritsch et al are joint inventors or Fritsch is the sole inventor. The invention at issue is not patentable to either entity under 35 USC 102(g).

This leaves Fritsch et al issue No. 5 (which challenges Lin's inventorship under 35 USC 102(f)). However, this is not a real issue, particularly with the Fritsch et al admissions referred to supra.

Accordingly, the Motion for Judgment by Lin filed on April 25, 1991, and incorporated herein by reference, should be granted in favor of Lin with a holding that Lin is entitled to his claims corresponding to the count in interference and that Fritsch et al are not entitled to their claims corresponding to the count.

In the Commissioner's Memorandum and Order dated April 5, 1991, Lin was asked to explain why it was appropriate to grant relief prior to the time the "Amgen decision" (i.e., the Federal Circuit decision) became final and why the decision governs

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the "application v. application" interferences, i.e. the present interference and Interference No. 102,334. Since then, however, the Court has denied both a petition for rehearing and a suggestion for rehearing en banc and has issued its mandate.

As to why the Federal Circuit decision should govern in an application v. application interference, as here, Lin notes that the Courts' findings on the priority evidence considered in the litigation established that Lin is the prior inventor of not only the DNA sequence and host cells transformed therewith at issue in Interference No. 102,096, but that he had used this sequence and transformed mammalian host cells to produce in vivo biologically active recombinant human EPO. Fritsch et al agree that the conception of the invention is dependent upon the conception of the DNA sequence. Thus, the litigation directly involved an essential feature of the process, i.e. the purified and isolated DNA sequence encoding EPO. The findings of the District Court, affirmed by the Federal Circuit, clearly show that Lin carried out the expression process using the DNA sequence to produce in vivo biologically active recombinant human EPO before Fritsch et al even conceived the DNA sequence. Lin submits that the Court findings establish priority for Lin as to the present count and show that the subject matter at issue is not patentable to Fritsch et al under 35 USC 102(g) because of Lin's acknowledged prior work. In the circumstances, the District Court's findings as affirmed by the Federal Circuit are dispositive of the priority issue, as well as other issues represented by the present interference, as discussed in the Lin motion for judgment. Since the subject matter at issue cannot be patentable to Fritsch et al because of Lin's 102(g) standing, the