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Hauer et al.

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- [54] **PHARMACEUTICAL COMPOSITIONS COMPRISING CYCLOSPORINS**
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Related U.S. Application Data

- [63] Continuation of Ser. No. 680,211, Apr. 4, 1991, abandoned, which is a continuation of Ser. No. 406,656, Sep. 13, 1989, abandoned.

[30] Foreign Application Priority Data

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| Feb. 9, 1989 [GB] | United Kingdom | 8902903 |
- [51] Int. Cl.⁵ **A61K 9/66; A61K 9/107; A61K 37/02; C07K 7/64**
 - [52] U.S. Cl. **424/455; 424/456; 424/457; 424/489; 514/11; 514/885; 514/937; 514/938; 514/963; 514/964; 514/970; 514/974; 514/975; 530/321**
 - [58] Field of Search **424/455, 456, 457, 489; 514/9, 11, 885, 937, 938, 970, 963, 964, 974, 975; 530/317, 321, 322**

[56] References Cited

U.S. PATENT DOCUMENTS

- | | | | |
|-----------|--------|-----------------|---------|
| 4,108,985 | 8/1978 | Rüegger et al. | 514/11 |
| 4,210,581 | 7/1980 | Rüegger et al. | 530/321 |
| 4,220,641 | 9/1980 | Traber et al. | 514/11 |
| 4,388,307 | 6/1983 | Cavanak | 514/11 |
| 4,835,002 | 5/1989 | Wolf et al. | 426/590 |
| 4,914,188 | 4/1990 | Dumont et al. | 530/317 |
| 4,990,337 | 2/1991 | Kurihara et al. | 424/427 |
| 4,996,193 | 2/1991 | Hewitt et al. | 514/11 |

FOREIGN PATENT DOCUMENTS

2098865 12/1992 United Kingdom .

OTHER PUBLICATIONS

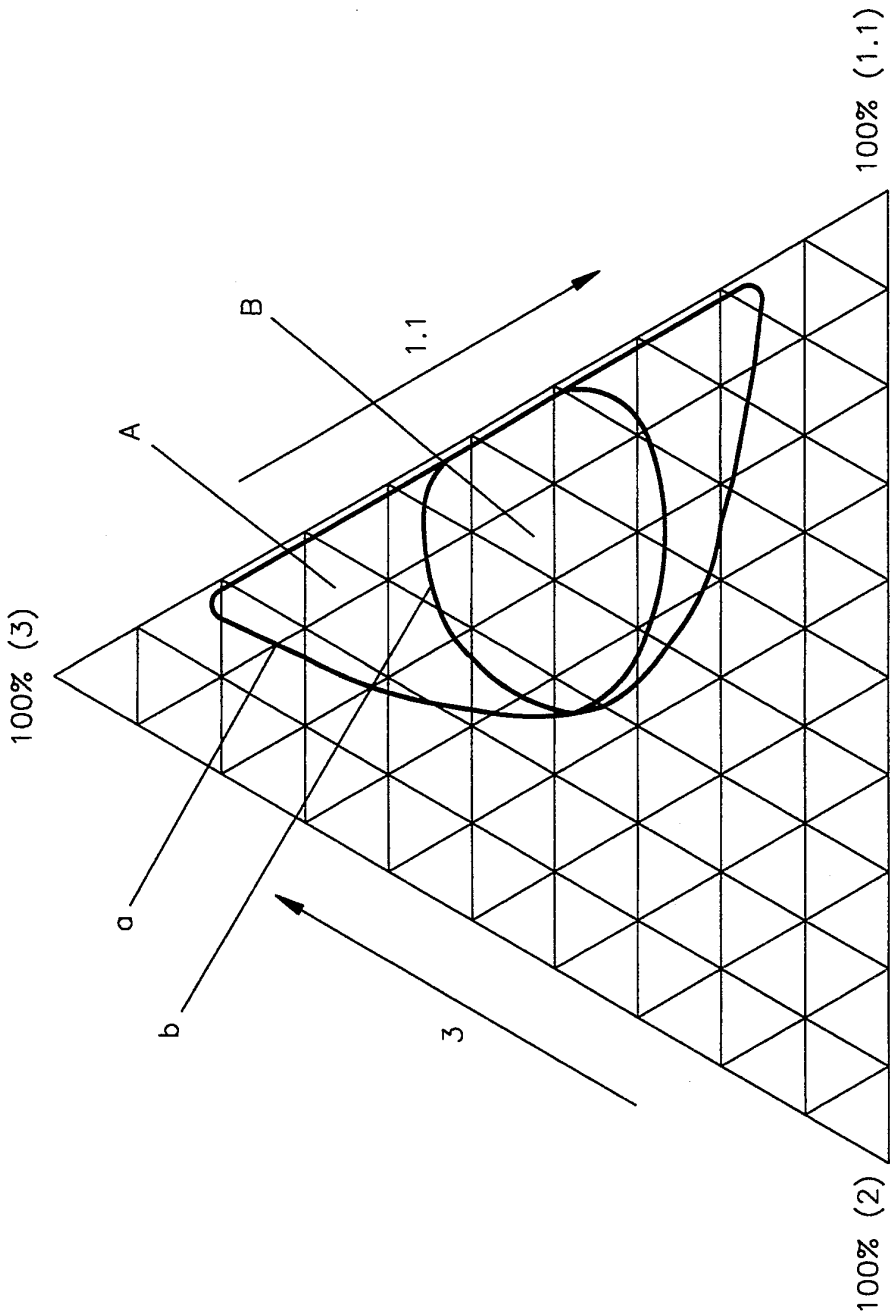
- W. A. Ritschel, et al., *Pharm. Res.*, 1988 (May 1910), Suppl. 108.
- Derwent No. 86/335072/51, (Apr. 26, 1985).
- Takada, et al., *J. Pharmacobia-Dyn.*, vol. 11, pp. 80-87 (1988).
- Bryan D. Tarr, et al., *Pharmaceutical Research*, vol. 6, No. 1, pp. 40-43 (1989).
- Reymond, et al., *Pharmaceutical Research*, vol. 5, No. 10, pp. 673-679 (1988).
- Remington's *Pharmaceutical Sciences*, 17th Edition, pp. 298-299 (1985).
- Derwent No. 87-086213/12 (1985).
- Takada, et al., *International Jour. of Pharmaceutics*, vol. 44, pp. 107-116 (1988).
- Derwent No. 89/088668/12 (Jul. 31, 1987).
- Derwent 87/024776/04 (Apr. 4, 1985).
- W. A. Ritschel, et al., *Meth. Find. Exp. Clin. Pharmacol.*, vol. 11, pp. 281-285 (1989).

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Attorney, Agent, or Firm—Robert S. Honor; Melvyn M. Kassenoff; Carl W. Battle

[57] ABSTRACT

Pharmaceutical compositions comprising a cyclosporin, e.g. Cyclosporin or [Nva]²-Cyclosporin, in "microemulsion pre-concentrate" and microemulsion form. The compositions typically comprise (1.1) a C₁₋₅alkyl or tetrahydrofurfuryl di- or partial-ether of a low molecular weight mono- or poly-oxy-alkane diol, e.g. Transcutol or Glycofurol, as hydrophilic component. Compositions are also provided comprising a cyclosporin and (1.1) and, suitably, also a saccharide monoester, e.g. raffinose or saccharose monolaurate. Dosage forms include topical formulations and, in particular, oral dosage forms.

26 Claims, 4 Drawing Sheets



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FIG. 1

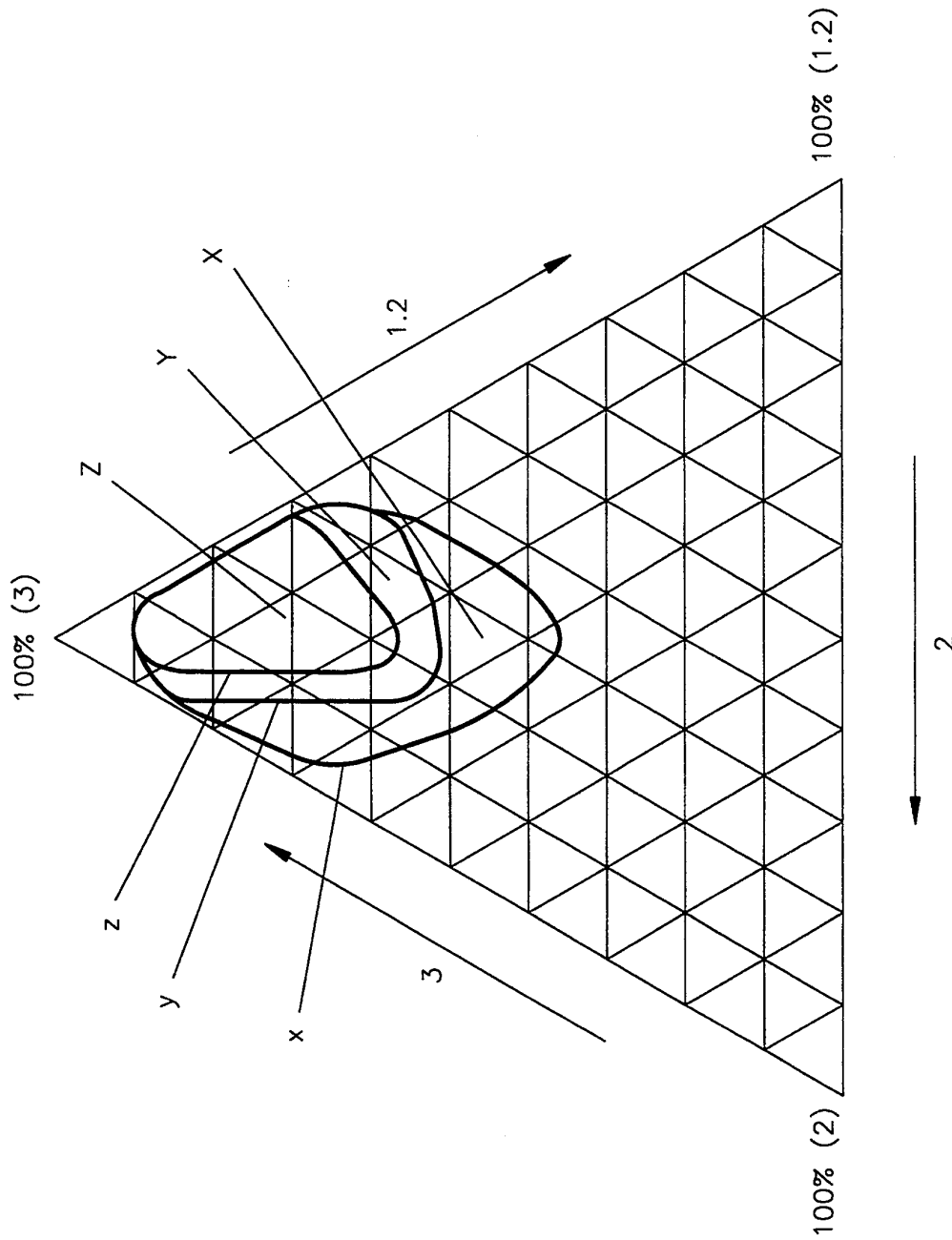


FIG. 2

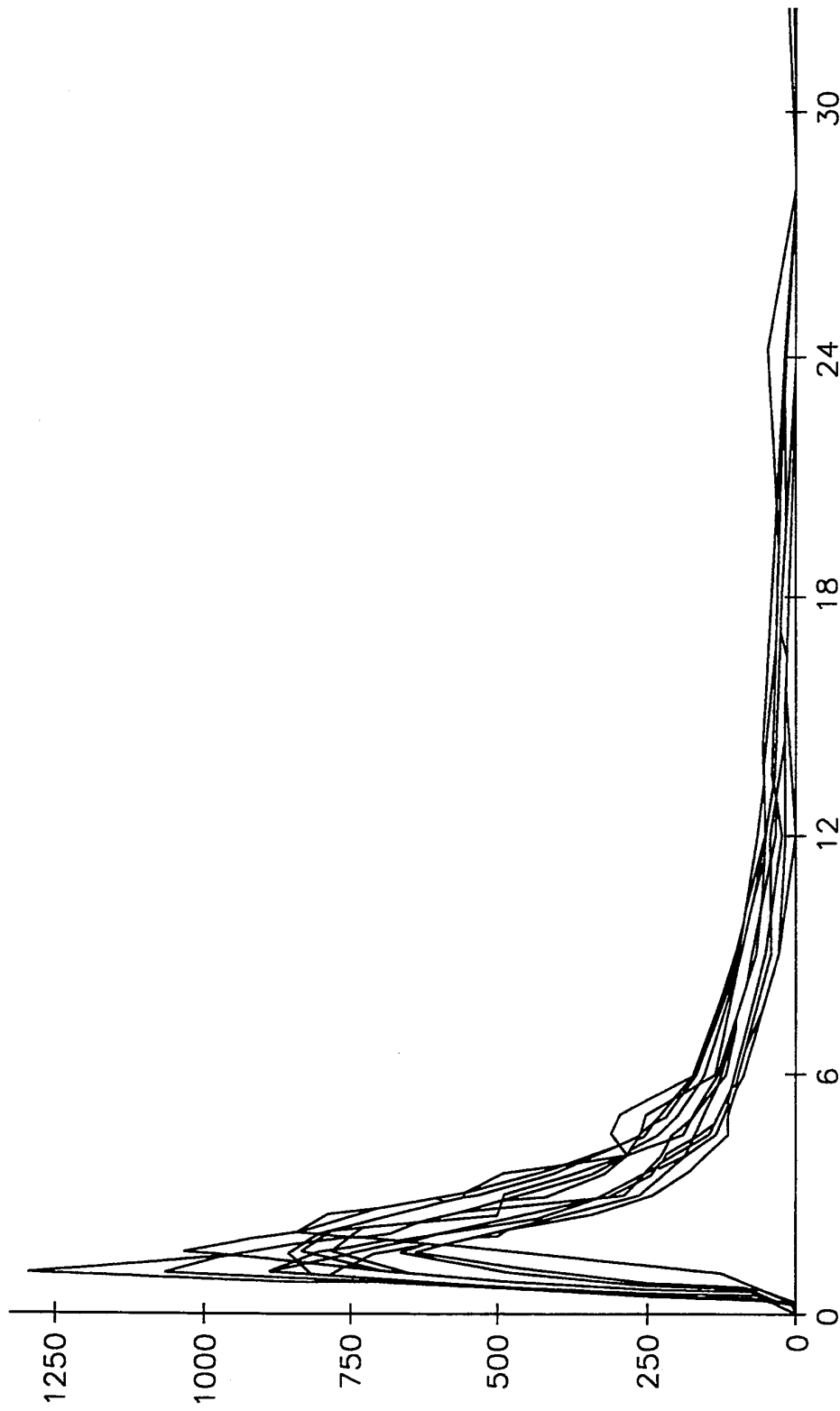


FIG. 3

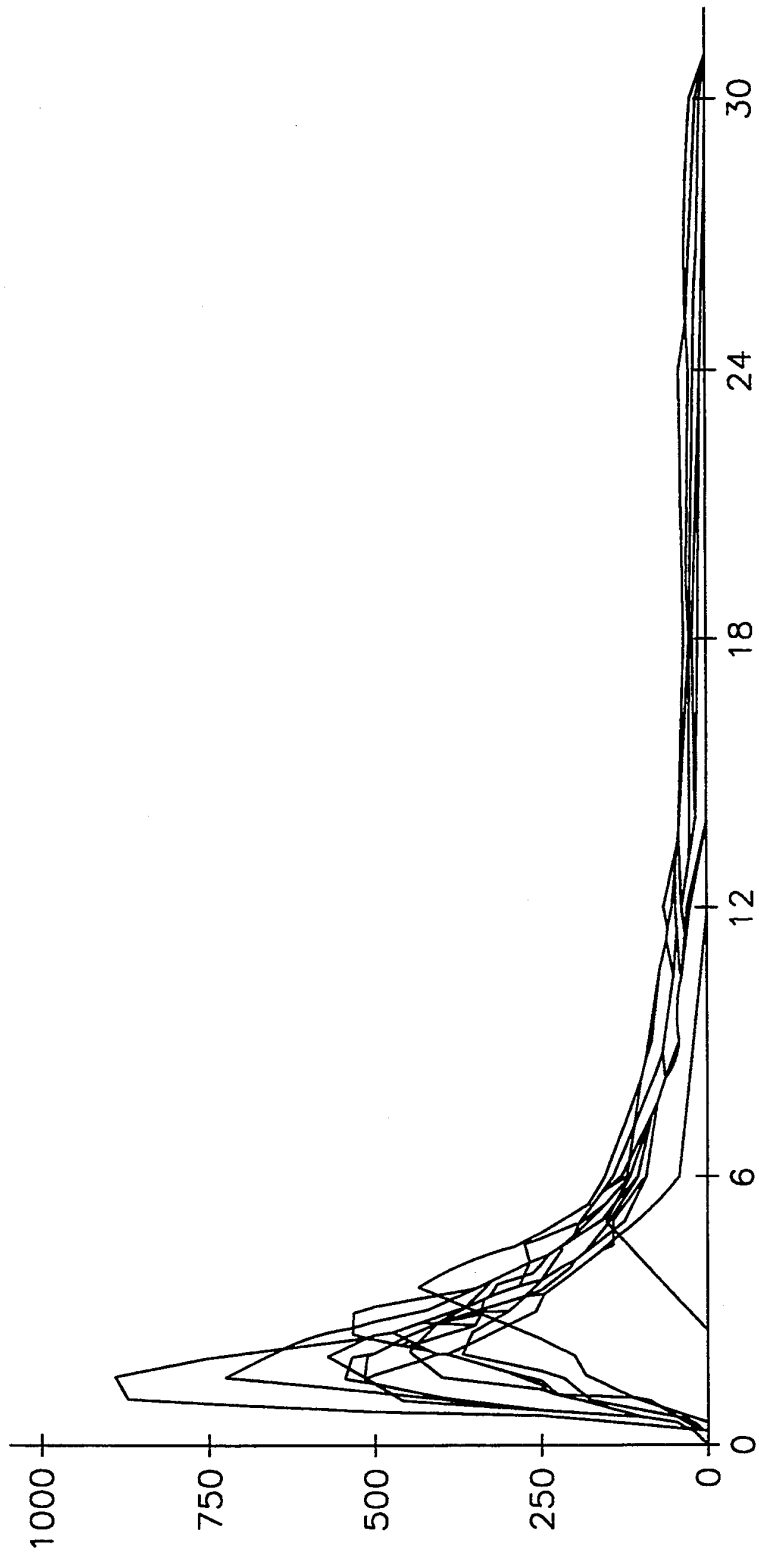


FIG. 4

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