

[54] **PURIFICATION OF PERTUSSIS HAEMAGGLUTININS**

[75] **Inventors:** Laurence I. Irons, Salisbury; Alastair P. MacLennan, Amesbury, both of England

[73] **Assignee:** The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

[21] **Appl. No.:** 15,467

[22] **Filed:** Feb. 26, 1979

[30] **Foreign Application Priority Data**

Mar. 1, 1978 [GB] United Kingdom ..... 8089/78

[51] **Int. Cl.<sup>3</sup>** ..... A61K 39/10; C07G 7/00

[52] **U.S. Cl.** ..... 260/112 R; 260/8; 260/112 B; 424/92

[58] **Field of Search** ..... 260/112 B, 112 R, 8; 424/92

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

3,395,219	7/1968	Millman .....	424/92
3,405,218	10/1968	Haskell et al. ....	424/92
3,465,078	9/1969	Spiesel .....	424/92
4,029,766	6/1977	Helting .....	424/92

**OTHER PUBLICATIONS**

Biochimica et Biophysica Acta, 444(1976), pp. 765-782, Arai et al.  
 Chem. Abstracts, vol. 78, 41239p, Sato et al.

Chem. Abstracts, vol. 85, 1976, G1201t, Morse et al., 1976.

*Primary Examiner*—Howard E. Schain  
*Attorney, Agent, or Firm*—Stevens, Davis, Miller & Mosher

[57] **ABSTRACT**

The Leukocytosis Promoting Factor (LPF) of Bordetella Haemagglutinin (HG) is separated from crude cell supernatant or partially purified protein by affinity chromatography on a column material consisting of an insoluble polymeric support to which is bound a sialoprotein (glycoprotein containing sialic acid) or other substance rich in sialic acid.

The sialoprotein was preferably a plasma sialoprotein, such as haptoglobin or ceruloplasmin, or a salivary mucin, and the polymeric support was preferably an agarose gel, though other conventional supports could be used.

By this process, on treatment of an ammonium sulphate precipitated extract, the haemagglinating activity may be increased 300-600 fold over the extract and 10,000 times over the crude centrifuged cell supernatant. Alternatively a fraction substantially free from LPF-HG may be collected.

Pertussis LPF-HG is reported to have various useful clinical properties, in particular adjuvant effect on antigenicity and the abilities to induce leukocytosis and sensitivity to histamine. By the process of the present invention LPF-HG may be produced cheaply and in large quantities, or removed from other cell extracts.

**17 Claims, 1 Drawing Figure**