



(12) **United States Patent**
Kinders et al.

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(54) **METHODS OF SCREENING FOR COLORECTAL CANCERS IN WHICH A COMPLEMENT FACTOR I OR RELATED PROTEIN IS ASSOCIATED**

512 733 A2 11/1992 (EP) .
685 739 A1 12/1995 (EP) .
WO 89/04174 5/1989 (WO) .
WO 91/05047 4/1991 (WO) .
WO 93/07888 4/1993 (WO) .
WO 96/07738 3/1996 (WO) .

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OTHER PUBLICATIONS

Goldberger et al. J. Biol. Chem. 262 (21):10065-71, 1987.*
Hirose et al, J. Biol. Chem. 267:5272-5278, 1992.*
Ngu et al., (V) The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al., (ed) Birkhauser, Boston, MA pp. 4333 and 492-95.*
Paul William, Fundamental Immunology 4th Edition p. 1238 Lippincott Raven Philadelphia PA, 1999.*

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* cited by examiner

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(51) **Int. Cl.**⁷ **C12Q 1/68**; C12Q 1/37; G01N 33/53; G01N 33/573; C12P 19/34; C12N 91/50

(57) **ABSTRACT**

Methods of screening for cancers or treating cancers or autoimmune disorders are disclosed. In an aspect of the present invention, the screening methods are based on the detection of complement C3 or C3 related protein, or a nucleic acid molecule encoding the same, found to be associated with the presence of cancer. Additional screening methods are based on the use of complement regulators Factor I or DAF, or complement receptors 1 or 3. Preferred embodiments to the methods include detection based on immunological properties, physical properties, enzymatic properties and combinations thereof, or detection of a nucleic acid molecule encoding antigen based on nucleic acid amplification.

(52) **U.S. Cl.** **435/7.23**; 435/6; 435/7.1; 435/7.4; 435/91.2; 435/219; 436/821

(58) **Field of Search** 435/6, 7.1, 91.2, 435/7.4, 219, 7.23; 436/821

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,342,566 8/1982 Theofilopoulos et al. .

FOREIGN PATENT DOCUMENTS

244 267 A2 11/1987 (EP) .
358 130 A2 3/1990 (EP) .

4 Claims, 16 Drawing Sheets