US009926562B2

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

(10) **Patent No.: US 9,926,562 B2**
(45) **Date of Patent: Mar. 27, 2018**

(54) **METHODS FOR PREVENTING AND TREATING CHRONIC KIDNEY DISEASE (CKD)**

(71) Applicants: **INSERM (INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE)**, Paris (FR); **ASSISTANCE PUBLIQUE—HOPITAUX DE PARIS**, Paris (FR); **INDIANA UNIVERSITY RESEARCH AND TECHNOLOGY CORPORATION**, Indianapolis, IN (US)

(72) Inventors: **Christos Chatziantoniou**, Paris (FR); **Jean-Claude Dussaule**, Paris (FR); **Simon J. Conway**, Indianapolis, IN (US)

(73) Assignees: **INSERM (INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE)**, Paris (FR); **ASSITANCE PUBLIQUE—HOPITAUX DE PARIS**, Paris (FR); **INDIANA UNIVERSITY RESEARCH AND TECHNOLOGY CORPORATION**, Indianapolis, IN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/353,788**

(22) Filed: **Nov. 17, 2016**

(65) **Prior Publication Data**

US 2017/0067053 A1 Mar. 9, 2017

Related U.S. Application Data

(62) Division of application No. 14/415,269, filed as application No. PCT/EP2013/065152 on Jul. 18, 2013, now abandoned.

(60) Provisional application No. 61/679,211, filed on Aug. 3, 2012.

(30) **Foreign Application Priority Data**

Jul. 18, 2012 (EP) 12305869

(51) **Int. Cl.**

C12N 15/11	(2006.01)
C12N 15/113	(2010.01)
C07K 16/18	(2006.01)
C12N 15/115	(2010.01)

(52) **U.S. Cl.**

CPC ***C12N 15/113*** (2013.01); ***C07K 16/18*** (2013.01); ***C12N 15/115*** (2013.01); ***C12N 15/1138*** (2013.01); *C07K 2317/76* (2013.01); *C12N 2310/11* (2013.01); *C12N 2310/16* (2013.01); *C12N 2310/315* (2013.01)

(58) **Field of Classification Search**

CPC C12N 15/113

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,506,559	B1 *	1/2003	Fire	A61K 31/7105 435/325
2009/0074788	A1 *	3/2009	Taniyama	C07K 16/18 424/152.1
2011/0130335	A1 *	6/2011	Kudo	A61K 48/005 514/16.4
2012/0058572	A1 *	3/2012	Taniyama	C07K 16/18 436/501

FOREIGN PATENT DOCUMENTS

WO WO2005/019471 A2 * 3/2005

OTHER PUBLICATIONS

Sen et al. (American Journal of Pathology 2011, 179: 1756-1767).*
Mael-Anin et al. Nephology Dialysis Transplation May 2012 Vo. 27 No. Suppl. 2, pp. 44., Meeting Info: 49th Congress of the European Renal Association, Paris France May 24-27, 2012.*
http://www.mayoclinic.org/diseases-conditions/kidney-disease/basics/definition/con-20026778, retrieved on Jun. 29, 2016, pp. 1-9.*
The Centers for Disease Control CDC, https://nccd.cdc.gov/CKD/help.aspx?section=F, accessed Jun. 29, 2016, pp. 1-3.*

* cited by examiner

Primary Examiner — Brian A Whiteman
(74) *Attorney, Agent, or Firm* — Whitham, Curtis & Cook, P.C.

(57) **ABSTRACT**

The present invention relates to methods for preventing and treating chronic kidney disease (CKD).

15 Claims, 7 Drawing Sheets