



US009410145B2

(12) **United States Patent**
Sprenger-Haus-sels et al.

(10) **Patent No.:** **US 9,410,145 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **METHOD FOR THE ISOLATION OF NUCLEIC ACIDS**

(75) Inventors: **Markus Sprenger-Haus-sels**, Mettmann (DE); **Gaby Schulte**, Duesseldorf (DE); **Thomas Deutschmann**, Wuppertal (DE); **Sibylle Felker**, Burscheid (DE)

(73) Assignee: **QIAGEN GMBH**, Hilden (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 523 days.

(21) Appl. No.: **11/815,296**

(22) PCT Filed: **Feb. 13, 2006**

(86) PCT No.: **PCT/EP2006/001274**
§ 371 (c)(1),
(2), (4) Date: **Feb. 25, 2008**

(87) PCT Pub. No.: **WO2006/084753**
PCT Pub. Date: **Aug. 17, 2006**

(65) **Prior Publication Data**
US 2008/0207889 A1 Aug. 28, 2008

(30) **Foreign Application Priority Data**
Feb. 11, 2005 (EP) 05002932

(51) **Int. Cl.**
C07H 21/00 (2006.01)
C07H 21/02 (2006.01)
C12N 15/10 (2006.01)

(52) **U.S. Cl.**
CPC **C12N 15/1003** (2013.01); **C12N 15/1006** (2013.01)

(58) **Field of Classification Search**
CPC C12N 15/1006; C12N 15/1003
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,383,393 B1	5/2002	Colpan et al.	
6,562,568 B1	5/2003	Kleiber et al.	
6,992,182 B1 *	1/2006	Muller et al.	536/25.41
7,005,266 B2 *	2/2006	Sprenger-Haussels	435/6
2006/0172331 A1 *	8/2006	Sprenger-Haussels	435/6

FOREIGN PATENT DOCUMENTS

EP	1 479 769 A	5/2004
WO	9501359	1/1995
WO	WO 98/31840	7/1998
WO	WO 2006/084753 A1 *	8/2006

OTHER PUBLICATIONS

Smith, Lucinda S. et al.; "Increased Yield of Small DNA Fragments Purified by Silica Binding;" *Biotechniques*, vol. 18, No. 6, 1995, pp. 970-972.

Winters, Michael A. et al., "Plasmid DNA Purification by Selective Calcium Silicate Adsorption of Closely Related Impurities;" *Biotechnology Progress*, vol. 19, No. 2, Jan. 31, 2003, pp. 440-447.

Third Party Observation based on Publication No. EP1851313; Application No. 06706886; "Method for Isolating Nucleic Acids, The Nucleic Acids Being Immobilised on a Matrix At an Increased Temperature"; filed Aug. 14, 2012.

Qiagen Sample & Assay Technologies, "MagAttract Virus Mini M48 Handbook" Jun. 2012.

* cited by examiner

Primary Examiner — Lawrence E Crane

(74) *Attorney, Agent, or Firm* — McBee Moore Woodward Vanik IP, LLC.

(57) **ABSTRACT**

The present invention concerns an improved method for the isolation of nucleic acids such as DNA and RNA from bacterial, plant, animal or human cells as well as from cell cultures and virus cultures, wherein the nucleic acid is immobilised on a matrix having a silicon-oxygen compound in the presence of a chaotropic agent and an alkanol, carried out in a temperature range of 36° to 75° C.

27 Claims, 2 Drawing Sheets