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60/869,937 14 December 2006 (14.12.2006) US
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- Declarations under Rule 4.17:**
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
  - as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- Published:**
- with international search report
  - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:  
9 April 2009

(54) Title: COMPOSITIONS AND METHODS TO TREAT MUSCULAR & CARDIOVASCULAR DISORDERS

(57) Abstract: The present invention relates to a novel microRNA, mir-208-2, implicated in muscular and cardiovascular disorders. The present invention also relates to oligonucleotide therapeutic agents (antisense oligonucleotides and/or double stranded oligonucleotides such as dsRNA) and their use in the treatment of muscular and cardiovascular disorders resulting from dysregulation of mir-208-2.



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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2007/025535

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. C12N15/11

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, Sequence Search, CHEM ABS Data, EMBASE, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>LAGOS-QUINTANA MARIANA ET AL: "New microRNAs from mouse and human" RNA, COLD SPRING HARBOR LABORATORY PRESS, WOODBURY, NY, US, vol. 9, no. 2, 1 February 2003 (2003-02-01), pages 175-179, XP002455766 ISSN: 1355-8382 cited in the application table 1</p> <p style="text-align: center;">----- -/--</p>	8

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search  <p style="text-align: center; font-weight: bold;">4 November 2008</p>	Date of mailing of the international search report  <p style="text-align: center; font-weight: bold;">12/02/2009</p>
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  <p style="text-align: center; font-weight: bold;">Schneider, Patrick</p>

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2007/025535

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROBERTS ET AL: "Molecular Cardiology and Genetics in the 21st Century-A Primer" CURRENT PROBLEMS IN CARDIOLOGY, YEAR BOOK MEDICAL PUBLISHERS, CHICAGO, US, vol. 31, no. 10, 1 October 2006 (2006-10-01), pages 637-701, XP005631198 ISSN: 0146-2806 page 676 - page 680 -----	
A	WO 2006/107826 A (UNIV TEXAS [US]; SRIVASTAVA DEEPAK [US]) 12 October 2006 (2006-10-12) the whole document -----	
P,A	OLDFORS ET AL: "Hereditary myosin myopathies" NEUROMUSCULAR DISORDERS, PERGAMON PRESS, GB, vol. 17, no. 5, 6 May 2007 (2007-05-06), pages 355-367, XP022063591 ISSN: 0960-8966 the whole document -----	
P,X	VAN ROOIJ EVA ET AL: "Control of stress-dependent cardiac growth and gene expression by a microRNA." SCIENCE (NEW YORK, N.Y.) 27 APR 2007, vol. 316, no. 5824, 27 April 2007 (2007-04-27), pages 575-579, XP009108166 ISSN: 1095-9203 the whole document -----	1-24
E	WO 2008/016924 A (UNIV TEXAS [US]; OLSON ERIC [US]; VAN ROOIJ EVA [US]) 7 February 2008 (2008-02-07) the whole document -----	1-24

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2007/025535

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this International search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-21 (completely),22-24 (partially)

Nucleic acid molecule comprising or consisting of mir-208-2 characterized by SEQ ID Nos: 1 to 8 and 10 to 77 and compositions and methods using said nucleic acid molecule to treat cardiovascular disorders

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2. claims: claims 22-24 (partially)

Use of mir-499 to treat (SEQ ID NO:9) cardiovascular disorder

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/025535

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 2006107826	A	12-10-2006	CA 2603881 A1	12-10-2006
			EP 1877557 A2	16-01-2008
			US 2006246491 A1	02-11-2006
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WO 2008016924	A	07-02-2008	NONE	
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