

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

MARKS & CLERK SINGAPORE LLP
TANJONG PAGAR
PO BOX 636
SINGAPORE 910816

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing (*day/month/year*)
17 September 2018

Applicant's or agent's file reference

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/SG2012/XXXXXX

International filing date

Applicant

ABC COMPANY PTY LTD et al.

1. The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.
- Filing of amendments and statement under Article 19:**
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
- When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.
- How?** Directly to the International Bureau preferably through ePCT, or on paper to:
The International Bureau of WIPO, 34, chemin des Colombettes, 1211 Geneva 20, Switzerland
(Facsimile No.: +41 22 338 82 70)
- For more detailed instructions**, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.
2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
4. **Reminders**
The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Shortly after the expiration of **18 months from the priority date**, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).
Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.
Within **22 months from the priority date**, the applicant may request that a **supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaaustralia.gov.au

Authorised officer

Patents Examiner
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference		FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/SG2012/XXXXXX	International filing date (<i>day/month/year</i>)	(Earliest) Priority Date (<i>day/month/year</i>)	
Applicant ABC COMPANY PTY LTD et al.			
This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau. This international search report consists of a total of 6 sheets. <input type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.			
<p>1. Basis of the report</p> <p>a. With regard to the language, the international search was carried out on the basis of:</p> <p><input checked="" type="checkbox"/> The international application in the language in which it was filed.</p> <p><input type="checkbox"/> A translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).</p> <p>b. <input type="checkbox"/> This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).</p> <p>c. <input type="checkbox"/> With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.</p> <p>2. <input type="checkbox"/> Certain claims were found unsearchable (See Box No. II).</p> <p>3. <input checked="" type="checkbox"/> Unity of invention is lacking (See Box No. III).</p> <p>4. With regard to the title,</p> <p><input type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input checked="" type="checkbox"/> the text has been established by this Authority to read as follows: A METHOD OF IDENTIFYING, ISOLATING AND/OR CULTURING FOETAL ERYTHROBLASTS</p> <p>5. With regard to the abstract,</p> <p><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input type="checkbox"/> the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.</p> <p>6. With regard to the drawings,</p> <p>a. the figure of the drawings to be published with the abstract is Figure No. I</p> <p><input checked="" type="checkbox"/> as suggested by the applicant.</p> <p><input type="checkbox"/> as selected by this Authority, because the applicant failed to suggest a figure.</p> <p><input type="checkbox"/> as selected by this Authority, because this figure better characterizes the invention.</p> <p>b. <input type="checkbox"/> none of the figures is to be published with the abstract.</p>			

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SG2012/XXXXXX**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:
the subject matter listed in Rule 39 on which, under Article 17(2)(a)(i), an international search is not required to be carried out, including
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 Supplemental Box for Details

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying 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.:
1-8

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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SG2012/XXXXXX

A. CLASSIFICATION OF SUBJECT MATTER

C12N 5/073 (2010.01)

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)

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 practicable, search terms used)

Google, Pubmed, CAPLUS, BIOSIS, MEDLINE, EPODOC, WPI: fetal,erythroblast, cd45, nuclear, cytoplasmic, morphology, ratio and like terms.

Applicant(s)/Inventor(s) name searched in EPODOC and internal databases provided by IP Australia.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Documents are listed in the continuation of Box C		

 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 17 September 2018	Date of mailing of the international search report 17 September 2018
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaaustralia.gov.au	Authorised officer Patents Examiner AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61262830000

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/SG2012/XXXXXX
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Cha, D. et al, "A simple and sensitive erythroblast scoring system to identify fetal cells in maternal blood", Prenatal Diagnosis, 2003, vol 23, pps 68-73 Abstract, Table 1, Figure 1, p. 69	1-8
Y	Choolani, M. et al, "Characterization of first trimester fetal erythroblasts for noninvasive prenatal diagnosis", Molecular Human Reproduction, 2003, vol. 9, pps 227- 235 Abstract, p. 227 r.h. column, p. 229 l.h. column	1-8
Y	Troeger, C. et al, "Approximately half of the erythroblasts in maternal blood are of fetal origin" Molecular Human Reproduction, 1999, vol. 5, pps 1162-1165 "Visual detection, manipulation and digestion of erythroblasts" at p. 1163 l.h. column	1-8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG2012/XXXXXX

Supplemental Box**Continuation of: Box III**

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- Claims 1-8 are directed to a method of identifying fetal erythroblasts. The feature of high cytoplasmic:nuclear ratio and absence of CD45 is specific to this group of claims.
- Claims 26 is directed to a method of identifying fetal erythroblasts. The feature of high cytoplasmic:nuclear ratio and large size is specific to this group of claims.
- Claim 25 is directed to a method of isolating fetal erythroblasts. The feature of micromanipulator is specific to this group of claims.
- Claims 21-24 are directed to a method of diagnosing a disease. The feature of culturing fetal erythroblasts and determining a genetic marker is specific to this group of claims.
- Claims 27-28 (fully) and 9-20 (in part) are directed to a method of culturing fetal erythroblasts. The feature of using mitogen is specific to this group of claims.
- Claims 29-30 (fully) and 9-20 (in part) are directed to a method of culturing fetal erythroblasts. The feature of using an epigenetic agent is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a priori*.

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. PCT/SG2012/XXXXXX
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This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date

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End of Annex

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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.