

PATENT COOPERATION TREATY

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **see form PCT/ISA/210**

Applicant's or agent's file reference <b>B09-3904EXT QT</b>		<b>FOR FURTHER ACTION</b> See paragraph 2 below
International application No. <b>PCT/EP2010/066341</b>	International filing date (day/month/year) <b>28.10.2010</b>	Priority date (day/month/year) <b>29.10.2009</b>
International Patent Classification (IPC) or both national classification and IPC <b>G06T7/00</b>		
Applicant <b>GALDERMA RESEARCH &amp; DEVELOPMENT</b>		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

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Box No. I	Basis of this opinion
1.	<p>With regard to the <b>language</b>, this opinion has been established 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>
2.	<p><input type="checkbox"/> This opinion has been established taking into account the <b>rectification of an obvious mistake</b> authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))</p>
3.	<p>With regard to any <b>nucleotide and/or amino acid sequence</b> disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> on paper</p> <p><input type="checkbox"/> in electronic form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed</p> <p><input type="checkbox"/> filed together with the international application in electronic form</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search</p>
4.	<p><input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p>
5.	<p>Additional comments:</p>

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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>
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1. Statement			
Novelty (N)		Claims _____ YES Claims <u>1-19</u> _____ NO	
Inventive step (IS)		Claims _____ YES Claims <u>1-19</u> _____ NO	
Industrial applicability (IA)		Claims <u>1-19</u> _____ YES Claims _____ NO	

2. Citations and explanations:	
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1 Reference is made to the following documents:

D1 US 2006/245631 A1 (LEVENSON RICHARD [US] ET AL  
LEVENSON RICHARD [US] ET AL) 2 November 2006  
(2006-11-02)

D2 BRUZZONE L ET AL: "Classification of Hyperspectral  
Remote Sensing Images With Support Vector  
Machines" IEEE TRANSACTIONS ON GEOSCIENCE AND  
REMOTE SENSING, IEEE SERVICE CENTER, PISCATAWAY,  
NJ, US LNKD-DOI:10.1109/TGRS.2004.826821, vol. 42,  
no. 8, 1 August 2004 (2004-08-01), pages  
1778-1790, XP011116375ISSN: 0196-2892

D3 US 7 219 086 B2 (GESHWIND FRANK [US] ET AL) 15 May  
2007 (2007-05-15)

• **Claims 1, 10, 19: absence of novelty and inventive step**

2 The present application fails to comply with the patentability requirements since the subject matter of **claim 1** does not meet the requirement of novelty.

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In particular, D1, discloses a

device for analyzing a hyper-spectral image,  
comprising

at least one sensor (1) able to produce a series  
of images in at least two wavelengths,

see D1, sign 202 in figure 2

a means of calculation (2) able to grade the  
pixels in an image according to a two-state  
grading relation, the image being received from  
the sensor (1) and

see D1, signs 210-212 in figure 2

a means of display (3) able to display at least  
one image resulting from the processing of the  
data received from the calculation means (2)  
characterized in that the calculation means (2)  
comprises:

see D1, sign 214 in figure 2

a means (4) of determining training pixels related  
to the two-state grading relation receiving data  
from a sensor (1),

see D1, signs 208-210 in figure 2

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a means (5) of calculating a projection tracking receiving data from the means (4) for determining training pixels and being able to effect an automatic chopping of the spectrum of the hyper-spectral image, and

see D1, sign 204 in figure 2 and paragraphs [0064, 0076]

a means (6) for producing a vast-margin separation receiving data from the projection tracking calculation means (5),

see D1, signs 210-214 in figure 2 and paragraphs [0093, 0101-0104], disclosing "support vector machines"

the calculation means (2) being able to produce data relating to at least one improved image in which can be distinguished the pixels obtained on completion of the vast-margin separation as a function of their grading according to the two-state grading relation.

see D1, signs 210-214 in figure 2 and paragraphs [0093, 0101-0104]

2.1 This analysis applies, *mutatis mutandis*, to the subject matter of **claim 10**, which thus also lacks novelty.

2.2 As regards **claim 19**, see D1, paragraphs

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[0003-0005] for the application to the classification of tissues. This implies that the alternative application to the detection of cutaneous lesions would be trivial in view of D1.

Alternatively, each of the documents cited by the applicant in the introduction to the application (pages 3-5) could serve as the closest prior art. Each of these documents discloses independently the application to the detection of cutaneous lesions, and each of them could be combined with document D1. Therefore, the subject matter of claim 19 is not inventive.

2.3 In the analysis cited above document D1 could be replaced by the document cited and discussed on page 6 of the application (i.e. the *thesis by G. Rellier submitted in 2002*), which, also, discloses the classification of hyper-spectral images by SVM after preprocessing by the projection tracking algorithm (see in particular chapters 1,3-4 of the thesis). Therefore, the subject matter of the independent claims would also lack *novelty* in view of the prior art cited by the applicant on page 6. It therefore follows also that the discussion of this document on pages 6-7 of the application is incomplete.

2.4 Alternatively, document D2 discloses, on the same page of the document (page 1779), the classification of the hyper-spectral images by using the projection tracking algorithm and also

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the SVMs. A person skilled in the art would then be prompted to combine the two algorithms to better avoid the "Hughes phenomenon", cited in D1 on page 1778. Therefore, the subject matter of the independent claims would also lack *inventive step* in view of D2.

2.5 Alternatively, *document D3* discloses the need to reduce the dimensionality of the space of characteristics before the use of a "support vector machine" in the classification of hyper-spectral images (see D3, abstract and column 33 line 54-column 35 line 3). It would then be trivial for a person skilled in the art to use an alternative standard reduction, such as, for example the projection tracking algorithm (see D1 and D2). Therefore, the subject matter of the independent claims also lacks *inventive step* in view of D3.

- **Dependent claims: absence of novelty and inventive step**

3 Concerning dependent claims 2-9, 11-18, it is apparent that the details cited in the claims are also disclosed in D1. Therefore, the subject matter of the dependent claims is not novel.

What is more, also in respect of the subject matter of the dependent claims the combination of the disclosure of document D1 with each of the documents cited in pages 2-5 of the application

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would be possible, as do the objections cited in paragraphs 2.3-2.5 above continue to be applicable to the subject matter of the dependent claims.

**Additional remarks**

If certain features appear to him to be patentable, the applicant is requested to take the following recommendations into account:

- all the arguments explaining why the amended subject matter of the invention may be considered to be novel and inventive should follow the problem-solution approach and argue in particular regarding inventive step with respect to the combination of the documents cited in the application with D1,
- it is up to the applicant to cite documents D1-D3 in the introductory part of the description and to indicate the corresponding prior art, as well as to amend the discussion of the document cited on page 6 to reflect the fact that this document also discloses the classification of hyper-spectral images by SVM after preprocessing by the projection tracking algorithm;
- the corresponding text of the description should be made consistent with the text of these amended claims; the embodiments which are no longer covered by the claims should be deleted or marked as no longer forming part of the claimed invention,
- the applicant should clearly identify the



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amendments made and specify the passages of the application as filed on which these amendments are based.