

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

Melchaeva O. A.
vn. ter. g. poselok Strelna, ul. Svyazi, 38, str. 1,
pomeshch. 89
p. Strelna, Saint Petersburg
198515

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference Anti-TRBV9comp		Date of mailing (<i>day/month/year</i>) 15 June 2023 (15.06.2023)
FOR FURTHER ACTION See paragraph 2 below		
International application No. PCT/RU 2023/050012	International filing date (<i>day/month/year</i>) 31 January 2023 (31.01.2023)	Priority date (<i>day/month/year</i>) 31 January 2022 (31.01.2022)
International Patent Classification (IPC) or both national classification and IPC (see extra sheet)		
Applicant JOINT STOCK COMPANY "BIOCAD"		

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 and 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.

Name and mailing address of the ISA/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, 125993, Russian Federation Phone No: +7(499)240-60-15, Fax +7(495)531-63-18	Date of completion of this opinion 24 April 2023 (24.04.2023)	Authorized officer M. Samokhvalova Telephone No. (8-499) 240-25-91
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/RU 2023/050012

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
☒ the international application in the language in which it was filed.
☐ 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)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(b)).
3. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☒ forming part of the international application as filed;
 - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13ter.1(a)),
☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
4. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established to the extent that a meaningful opinion could be formed without a WIPO Standard ST.26 compliant sequence listing.
5. Additional comments:

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Form PCT/ISA/237 (Box No. V) (July 2022)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of V:

- claims 2-6: D1 (p.7, line 18 - p.8, line 31; claims 1-3) or D2 (p.6, line 18 - p.7, line 29; claims 1-3) discloses an anti-TRBV9 antibody which is a full-length IgG antibody that is of human IgG1, IgG2, IgG3 or IgG4 isotype and contains the corresponding heavy chain variant domain and light chain variant domain, heavy chain and light chain sequences;
- claims 7-12: D1 (p.39, table 4) or D2 (p.37, table 3) disclose an antibody concentration of 1-50 mg/ml;
- claims 33-35, 43, 44, 46, 47, 49, 52, 55, 66: D1 (p.29, lines 31-36; p.30, lines 17-37; p.39, table 4) or D2 (p.28, lines 16-21; p.29, lines 2-22; p.37 Table 3) disclose that the pharmaceutical compositions for administration are designed to suit the chosen injection method and that pharmaceutically acceptable diluents, carriers and/or excipients such as isotonic agents, stabilizers are appropriately used. Polyols, mono- and disaccharides, amino acids, metal salts such as sodium chloride can be used as isotonic agents. The concentration of sodium chloride can be 50-150 mM, the concentration of trehalose can be 0.3-0.5%. Amino acids such as arginine, histidine, glycine, lysine, glutamine, proline; surfactants such as polysorbate 20, polysorbate 80, polyethylene-polypropylene glycol and its copolymers (trade names Poloxaner, Pluronic) can be used as stabilizers;
- claims 80-82: both D1 (claims 12, 20) and D2 (claims 12, 20) disclose that the disease or disorder is selected from the group comprising: ankylosing spondylitis, celiac disease, T cell leukemia, T cell lymphoma.

The pharmaceutical composition according to dependent claims 13-22 differs from this known D1 or D2 in that the histidine buffer is a mixture of histidine and histidine hydrochloride monohydrate with said concentrations.

The pharmaceutical composition according to dependent claims 23-32 differs from this known D1 or D2 in that the acetate buffer is a mixture of sodium acetate and acetic acid with said concentrations.

The pharmaceutical composition of dependent claims 36-39 differs from this known D1 or D2 in that it discloses a concentration of proline.

The pharmaceutical composition according to dependent claims 40-42 differs from this known D1 or D2 in that it discloses a concentration of sorbitol.

The pharmaceutical composition of dependent claims 45 differs from this known D1 or D2 in that the trehalose is at a concentration of 100.0 mg/ml.

The pharmaceutical composition of dependent claim 48 differs from this known D1 or D2 in that the sodium chloride is at a concentration of 9.0 mg/ml.

The pharmaceutical composition of dependent claims 50, 51, 53, 54, 56-65, 67-71 differs from this known D1 or D2 in that it discloses a concentration of a stabilizer, particularly glycine, methionine, a surfactant.

The pharmaceutical composition of dependent claims 72-78 differs from this known D1 or D2 in that it discloses composition content.

The pharmaceutical composition of claims 13-32, 36-42, 45, 48, 50, 51, 53, 54, 56-65, 67-78 is therefore novel.

Inventive step

Dependent claims 13-32, 36-42, 45, 48, 50, 51, 53, 54, 56-65, 67-78 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the Article 33(3) PCT in respect of inventive step, for the following reasons:

- claims 13-22: D3 discloses a buffer agent that consists of L-histidine in an amount from 0.4 to 1.6

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of V:

mg/ml and histidine hydrochloride monohydrate in an amount from 0.4 to 1.6 mg/ml (claim 12);

- claims 23-32: D4 discloses a protein composition containing 0.001-5 mg sodium acetate trihydrate as a buffer agent and glacial acetic acid to a pH of 4.0-6.0 (p.8, lines 21-26; claim 1);
- claims 36-39: D5 discloses a proline stabilizer at a concentration of 5 to 40 mg/ml in the antibody pharmaceutical composition (p.19, lines 34-45; claim 1);
- claims 40-42: D4 discloses a protein composition containing 1-100 mg sorbitol (p.10, table 1; claims 1, 2);
- claim 45: D4 discloses the content of, in particular, 100 mg trehalose in the protein composition (p.10, table 1; claims 1, 2), D5 discloses the content of trehalose, in particular, at a concentration of 100 mg/ml in the antibody pharmaceutical composition (p.19, lines 34-45; claims 1);
- claim 48: D4 discloses the content of, in particular, 9 mg sodium chloride in the protein composition (p.10, table 1; claims 1, 2).
- claims 50, 51, 53, 54, 56-65, 67-71: D6 discloses a content of 5-10 mg/ml glycine as a stabilizer in the pharmaceutical antibody composition (p.50, lines 17-19; claim 1), D7 discloses a content of 0.05-10 mg/ml methionine in the antibody pharmaceutical composition ([0111-0118]), D5 discloses a content of 0.05-10 mg/ml poloxamer surfactant 188, or polysorbate 80 in the antibody pharmaceutical composition (p.18, line 36 to p.19, line 22);
- claims 71-78: A person skilled in the art may combine the above disclosures in D1 or D2, and D5-D7 and use the appropriate concentrations of ingredients to obtain a pharmaceutical anti-TRBV9 antibody composition.

Industrial applicability

Claims 1-82 are industrially applicable (PCT Article 33(4)).

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
Classification of subject matter

International application No.

PCT/RU 2023/050012

A61K 39/395 (2006.01)
A61K 47/02 (2006.01)
A61K 47/10 (2017.01)
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