Abstract:

Title: MILK PROTEIN HYDROLYZATES WITH REDUCED IMMUNOGENIC POTENTIAL


Hydrolyzates of milk protein are provided. The hydrolyzates reduce the immunogenicity of the milk or whey protein in a subject predisposed to having an immune reaction to the protein. Methods for making the compositions are also provided, as food products and nonfood products comprising the compositions.
**INTERNATIONAL SEARCH REPORT**

**International application No**
PCT/US2007/024723

A. CLASSIFICATION OF SUBJECT MATTER

**INV.** A23J3/34 A23L1/305

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)
A23J A23L

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, WPI Data, CHEM ABS Data, Sequence Search, EMBASE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 5 866 357 A (DAMBMANN CLAUS [DK] ET AL)</td>
<td>1-3, 5-11, 13, 23</td>
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<tr>
<td></td>
<td>2 February 1999 (1999-02-02) cited in the application</td>
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<td>the whole document</td>
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<td>Y</td>
<td>NAKAMURA T ET AL: &quot;ENZYMATIC PRODUCTION OF HYPOALLERGENIC PEPTIDES FROM CASEIN&quot;</td>
<td>4,12, 17-22, 24,25</td>
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<td>MILCHWISSENSCHAFT, VV GMBH</td>
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<td>VOLKSWIRTSCHAFTLICHER VERLAG, MUNCHEN, DE, vol. 48, no. 1;</td>
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<td></td>
<td>1 January 1993 (1993-01-01), pages 11-14,</td>
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<td></td>
<td>XP000356112</td>
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<td></td>
<td>ISSN: 0026-3788</td>
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**Further documents are listed in the continuation of Box C.**

**See patent family annex.**

- **X** 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
  - 'Z' document member of the same patent family

**Date of the actual completion of the international search**
5 June 2008

**Date of mailing of the international search report**
28/07/2008

**Name and mailing address of the ISA/EP**
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk
Tel.: (+31-70) 340-2040, Tx.: 31 651 epo nl, Fax.: (+31-70) 340-3016

**Authorized officer**
Schneider, Patrick
<table>
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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
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<tr>
<td>A</td>
<td>HOST A ET AL: &quot;Hypoallergenic formulas - when, to whom and how long: after more than 15 years we know the right indication&quot; ALLERGY (OXFORD), vol. 59, no. Suppl. 78, August 2004 (2004-08), pages 45-52, XP009100976 ISSN: 0105-4538 abstract</td>
<td></td>
</tr>
</tbody>
</table>
1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

   a. type of material
      - [X] a sequence listing
      - [ ] table(s) related to the sequence listing

   b. format of material
      - [X] on paper
      - [X] in electronic form

   c. time of filing/furnishing
      - [ ] contained in the international application as filed
      - [ ] filed together with the international application in electronic form
      - [X] furnished subsequently to this Authority for the purpose of search

2. [X] In addition, in the case that more than one version or copy of a sequence listing and/or table 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.

3. Additional comments:
### INTERNATIONAL SEARCH REPORT

**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 all searchable 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.:

   1-11, 13, 18, 19, 22, 23, 25 (completely); 12, 14, 16, 17, 20, 21
   24 (partially)

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

Invention 1: claims 1-11, 13, 18, 19, 22, 23, 25 (all complete), 12, 14, 16, 17, 20, 21, 24 (all partially)

A hydrolyzate from milk or whey proteins as food or nonfood product produced by Glu/Asp specific endopetidase, the hydrolyzate comprising a peptide having SEQ ID NO:1.

Inventions 2, 3 and 4: claims 12, 14, 16, 17, 20, 21, 24 (partially)

A milk/whey hydrolyzate as food or nonfood product comprising a peptide having SEQ ID NOs. 2, 3 or 4.

Inventions 5 to 15: claims 14, 16 (partially)

A hydrolyzate comprising peptides having SEQ ID NOs 5 to 15.

Inventions 16 to 33: claim 15 (partially)

A hydrolyzate comprising a peptide having SEQ ID NOs: 16 to 33
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
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<tbody>
<tr>
<td>US 5866357 A</td>
<td>02-02-1999</td>
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