Granted patents

The following tables present the granted patents related to DCD application for skin care. Excluding the first four patents, all other expired due to failure to pay a due fee or another reason.

List of used abbreviations which describe patent types:

[EU] - European patent
[US] - US patent
[WO] - international patent (PCT)
[KR] - Korean patent
[JP] - Japanese patent
[CN] - Chinese patent

The most important information are highlighted/bold and they should be investigated more if one would like to develop concept further to commercial product.

<table>
<thead>
<tr>
<th>[EU] A Novel Method For The Production Of A Antimicrobial Peptide</th>
</tr>
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<tbody>
<tr>
<td>Legal status:</td>
</tr>
<tr>
<td><strong>ANNUAL FEES PAID TO NATIONAL OFFICES: CH, DE, DK, GB, NL (201609), FR (201709); in other EU countries lapsed (unknown status in: AL, LI, MK)</strong></td>
</tr>
<tr>
<td>Relevant claims:</td>
</tr>
<tr>
<td>• A method of producing a peptide consisting of the amino acids 63 to 110 of dermcidin (..) wherein the host cell is a prokaryote cell or a fungal/yeast cell.</td>
</tr>
<tr>
<td>• The method of any one of claims 1 to 5 further comprising the step of <strong>admixing the peptide to a skin benefit agent or dermatological benefit agent.</strong> ([0052] “Skin benefit agents and dermatological benefit agents” in accordance with the invention include: (d) hydrophobic and hydrophilic plant extracts;)</td>
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<tr>
<td>Legal status:</td>
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<tr>
<td><strong>PATENT APPLICATION- unclear status- ASSIGNMENT (20120416)</strong></td>
</tr>
<tr>
<td>Relevant claims:</td>
</tr>
<tr>
<td>US claims are broader than in the above EU patent.</td>
</tr>
</tbody>
</table>
### [EU] Cosmetic Use Of Dermicidin And Fragments Thereof

**Legal status:**

**ANNUAL FEES PAID TO NATIONAL OFFICES: DE, ES, GB, IT (2016), FR (2017);** in other EU countries lapsed (unknown status in: AL, CY, HR, HU, MC, MK, MT, SI, TR)

**Relevant claims:**

- The present invention relates, in particular, to the use of a sequence of amino acids of dermicidin or an analogue or fragment thereof, and at least one sequence of nucleic acids coding said sequence (...)
- The cosmetic use of an effective amount (i) of at least one sequence of amino-acids represented by (...), or (ii) of at least one sequence of nucleic acids represented by (...), as an active agent for *preventing and/or treating aged skin and/or skin signs of ageing* either associated or not with skin dryness.
- A cosmetic method for *preventing and/or treating aged skin and/or signs of aged skin, either associated or not with skin dryness* in an individual in need thereof, comprising at least one step consisting of administering to said individual, at least one composition comprising as an active agent (i) at least one sequence of amino-acids represented by (...), or (ii) at least one sequence of nucleic acids represented by (...).

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### [US] Cosmetic Use Of Dermicidin, And Analogues Or Fragments Thereof

**Legal status:**

**unclear status - ASSIGNMENT (201307)**

**Relevant claims:**

US claims are broader than in the above EU patent.

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### [EU] Antimicrobially Active Peptide / [US] Antimicrobially Active Peptide

**Legal status:**

**[EU] PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE (20150607) [US] PATENT EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE (20160325)**

**Relevant claims:**

- An isolated antimicrobially active peptide of a dermicidin (DCD) protein (...)
- Use of the peptide as claimed in any of claims 1 to 8 or of a peptide which comprises the DCD-protein SEQ ID No. 1 or a fragment of DCD, preferably derived from the C-terminal region of DCD, *for the manufacture of a medicament for the protection against or for the treatment of skin diseases.*
- A pharmaceutical composition which comprises as active ingredient a peptide as claimed in any of claims 1 to 8 in an antimicrobially effective amount.
- A cosmetic composition which comprises as active ingredient a peptide (...).
[US] **Antimicrobially Active Peptides**

Legal status:
**EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE (20161211)**

Relevant claims:
- An isolated and purified antimicrobially active peptide fragment from the C-terminus of dermcidin (DCD) protein of SEQ ID NO: 1, wherein the antimicrobially active peptide consists of a maximum of 50 contiguous amino acid residues from the C-terminal of DCD, and wherein the peptide comprises amino acids 66-85 of SEQ ID NO: 1.
- A method for treating human skin against microorganisms, comprising the step of administering the antimicrobially active peptide fragment of claim 1.

**Patent applications**

A few patent applications are processed which are similar to our concepts. The status of most of them is unclear. However, it seems unlikely that the patents will be granted because the similar applications were withdrawn, did not go into an examination phase, or were changed in the course of process.

[EU] **Use Of Dermcidin To Treat Oily, Acne-prone Skin Or To Prevent The Appearance Of Imperfections**

Legal status:
**DEEMED TO BE WITHDRAWN (20160809)**

Relevant claims:
As described in the patent title

[US] **Cosmetic Use Of Dermcidin, Or Analogues Or Fragments Thereof, For The Prevention And/or Treatment And Diagnosis Of Oily Skin And Aesthetic Skin Disorders Associated Therewith**

Legal status:
**unclear status- ASSIGNMENT (20151218)**

Relevant claims:
As described in the patent title
### [EU, KR JP, CA] Compositions And Methods For Treatment Of Skin Diseases And Disorders Using Antimicrobial Peptide Sequestering Compounds

**Legal status:**

EXAMINATION REQUEST / FIRST EXAMINATION REPORT (2016); the patents from the same family were granted in CN and US, however a patented topical agent was changed in the process of application and eventually does not comprise a peptide, polypeptide or protein.

**Relevant claims:**

- The composition for use, wherein the antimicrobial peptide being sequestered by the compound is a human dermicidin polypeptide.
- The composition for use, wherein the skin diseases and disorders associated with deregulation of the skin's antimicrobial peptide formation, processing, or both is selected from the group consisting of rosacea, psoriasis, acne, atopic dermatitis, seborrheic dermatitis, skin cancer, melanoma, skin wounds, and ulcers.

### [WO, FR] Cosmetic Use Of Dermcidin, Or Analogues Or Fragments Thereof, For Preventing And/or Treating Body Odour And Also For Diagnosing Odorous Sweat

**Legal status:**

NON-ENTRY INTO THE NATIONAL PHASE IN DE (2015)
NON-ENTRY IN EUROPEAN PHASE (2016)
[FR] unclear status - FEE PAYMENT (2017)

**Relevant claims:**

As described in the patent title

### [WO] Materials And Methods For Control Of Infections

**Legal status:**

NON-ENTRY INTO THE NATIONAL PHASE IN DE (2008)
NON-ENTRY IN EUROPEAN PHASE (2009)

**Relevant claims:**

- (…) The vector of any of claims 1-9, wherein the antimicrobial peptide is at least one dermicidin-derived peptide selected from the group consisting of DCD-I L>DCD-I5 (..)
- The method of any of claims 15-19, wherein the vector or host cell is administered to the subject's skin.