Aqueous solution of L-glutamylamidoethyl indole
INCI Denomination : GLUTAMYLAMIDOETHYL INDOLE (and) WATER

**Origin**

GLISTIN® is a stable aqueous solution of the synthetic dipeptide L-glutamylamidoethyl indole.

**Composition**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-glutamylamidoethyl indole</td>
<td>1.00 %</td>
</tr>
<tr>
<td>Sodium methyl paraben</td>
<td>0.14 %</td>
</tr>
<tr>
<td>Water sq</td>
<td>100.00 %</td>
</tr>
</tbody>
</table>

**Technical Characteristics**

- Limpid, colorless liquid
- pH: around 7.0
- Density at 20°C: around 1.0
- Miscible with water, alcohols and glycols

**Availability**

1, 5 or 30 kg drums

**Uses**

**cosmetic neuroprotection**

* anti neuronal degenerescence, neurotrophic effect (NGF-like)
* cutaneous neuroprotection (anti-apoptotic effect)
* neuro-cutaneous messenger
* anti-stress (cutaneous sensitivity)
* anti-aging
GLISTIN®: CUTANEOUS NEUROACTIVE

Neuroprotection is more than just an «ordinary» anti-oxidant activity

The PC12 cells, which are nervous cells, are not renewed: therefore they have to be carefully protected against damages, such as UV oxidation, which could prematurely kill them. The neuroprotector effect of L-glutamylamidoethyl indole, much more efficient than the one of vitamin E, has been evidenced, after UVB irradiation of nervous cells at 285 nm.

Adding L-glutamylamidoethyl indole at concentrations ranging from 0.05 to 0.1 mg/ml is compensating for NGF lack and maintains the integrity of the neuronal network by avoiding the neurodegenerescence as well as the apoptotic death of the nervous cells.

Anti-apoptotic effect

Unlike most cells, the programmed nervous cells death (apoptosis) is «an end in itself» since those specific cells are not renewed. One direct consequence of the neuroptrophic effect, already tested, is a decrease of apoptotic cells.

This phenomenon qualitatively observed on the above photos, was also confirmed by a quantitative test on the PC12 cells, by measuring an pro-apoptotic inhibitor (Bax) using RTPCR.

The expression of some interleukines and neuropeptidites is measured 5 days (D10) after the differentiation. The results show that GLISTIN® promotes the NPY expression (neuropeptide Y) as well as the VIP one (vaso-active intestinal peptide). Moreover, the interleukine IL-6 expression is also increased with GLISTIN®.

Neuroprotective effect

The growth of the nervous cells is widely different from the other types of cells since they are not renewed. Therefore any damage will have a crucial impact on them compared to the other ones. Moreover, the apoptotic process, the «positive» programmed death for the seriously damaged cells, is the ultimate step for the nervous cells.

Their growth has to go through a differentiation stage. The undifferentiated precursor cells (morphologically non distinct), will be transformed into nervous cells, morphologically characterized by the presence of dendrites. The differentiation process occurs with the help of neurotrophic factors such as NGF. It is clearly observed that nervous cells (PC12) in an enriched NGF culture lead to an optimum differentiation characterized by the presence of dendrites as well as an important neuronal network. On the opposite, a lack of NGF will end up in a damaged network and into the cells’ apoptotic death (neurodegenerescence).

Proposal of a mechanism: expression of interleukines and neuropeptidites...
Tolerance Study

Clinical tests have been performed to evidence the safety of GLISTIN® for cutaneous irritability, sensitization, phototoxicity and photoallergy. The tolerance of GLISTIN® has also been studied in vitro by non animal alternative methods. The ocular tolerance is evaluated by studying the cytotoxicity on fibroblast culture isolated from rabbit cornea and also by Het Cam techniques. The cutaneous tolerance is evaluated on human skin explants. The results observed show that:

- GLISTIN® is not irritant.

The potential mutagenic activity of GLISTIN® has also been studied by Ames tests. No mutagenic activity was induced on the selected bacterial strains.

Formulation

Avoid light-exposure and use opaque packaging. The incorporation of anti-oxidant and metals scavengers would increase the stability of it. GLISTIN® is not sensitive to temperature. The recommended concentration is about 1%.

Existing Studies


* Protection of cutaneous neurons by a new peptidomimetic endowed with neurotrophic and anti-apoptotic properties (IFSCC Congress, Seoul, Sep. 2003)

* Study of the neuroprotective and anti-apoptotic properties of ETRY50, a new neurotrophic agent (IIID Congress, Miami, May 2003)

* Toxicity - Tolerance