



上海源叶生物科技有限公司  
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产品名称: **Amyloid  $\beta$ -Protein(1-40)(mouse00rat)**  
产品别名:  **$\beta$  淀粉样肽(1-40)(鼠) ; Amyloid  $\beta$ -peptide (1-40) rat**

| 生物活性:                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|--------------|-------------------|---------------------------------------------|----|------------------|----------------------------------------------------------------|----|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|---|
| Description               | Amyloid $\beta$ -peptide (1-40) (rat) is the prone-to-aggregation product of amyloid precursor protein proteolytic cleavage, and is the major constituent of senile plaques observed in the brain of Alzheimer's disease.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
| IC <sub>50</sub> & Target | The Amyloid $\beta$ -peptide (1-40) (rat)-treated rats require longer to find the platform hidden under the water. In the visible platform test, the latency for each group is similar (20.56±11.31 s in control and 14.68±9.97 s in Amyloid $\beta$ -peptide (1-40) (rat) group, p=0.304). Among these tested proteins, 6 ones are significantly up-regulated and 7 ones significantly down-regulated in Amyloid $\beta$ -peptide (1-40) (rat) group comparing with the control. Tubulin $\beta$ chain is significantly down-regulated in Amyloid $\beta$ -peptide (1-40) (rat) group (p=0.014) when compare with control. Similar changes are also observed for ATP synthase $\beta$ subunit (p=0.010) and synapsin Ib between Amyloid $\beta$ -peptide (1-40) (rat) and control groups, but not significantly for synapsin Ib (p=0.295) <sup>[1]</sup> . |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
| Solvent&Solubility        | <b>In Vitro:</b><br>H <sub>2</sub> O<br><br><b>Peptide Solubility and Storage Guidelines:</b><br><br>1. Calculate the length of the peptide.<br><br>2. Calculate the overall charge of the entire peptide according to the following table:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <table><tr><th></th><th>Contents</th><th>Assign value</th></tr><tr><td>Acidic amino acid</td><td>Asp (D), Glu (E), and the C-terminal -COOH.</td><td>-1</td></tr><tr><td>Basic amino acid</td><td>Arg (R), Lys (K), His (H), and the N-terminal -NH<sub>2</sub></td><td>+1</td></tr><tr><td>Neutral amino acid</td><td>Gly (G), Ala (A), Leu (L), Ile (I), Val (V), Cys (C), Met (M), Thr (T), Ser (S), Phe (F), Tyr (Y), Trp (W), Pro (P), Asn (N), Gln (Q)</td><td>0</td></tr></table> |              | Contents | Assign value | Acidic amino acid | Asp (D), Glu (E), and the C-terminal -COOH. | -1 | Basic amino acid | Arg (R), Lys (K), His (H), and the N-terminal -NH <sub>2</sub> | +1 | Neutral amino acid | Gly (G), Ala (A), Leu (L), Ile (I), Val (V), Cys (C), Met (M), Thr (T), Ser (S), Phe (F), Tyr (Y), Trp (W), Pro (P), Asn (N), Gln (Q) | 0 |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Assign value |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Acidic amino acid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Asp (D), Glu (E), and the C-terminal -COOH.                                                                                                                                                                                                                                                                                                                                                                                                                                              | -1           |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Basic amino acid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Arg (R), Lys (K), His (H), and the N-terminal -NH <sub>2</sub>                                                                                                                                                                                                                                                                                                                                                                                                                           | +1           |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Neutral amino acid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Gly (G), Ala (A), Leu (L), Ile (I), Val (V), Cys (C), Met (M), Thr (T), Ser (S), Phe (F), Tyr (Y), Trp (W), Pro (P), Asn (N), Gln (Q)                                                                                                                                                                                                                                                                                                                                                    | 0            |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | 3. Recommended solution:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Overall charge of peptide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Negative (<0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1. Try to dissolve the peptide in water first.<br>2. If water fails, add NH <sub>4</sub> OH (<50 $\mu$ L).<br>3. If the peptide still does not dissolve, add DMSO (50-100 $\mu$ L) to solubilize the peptide.                                                                                                                                                                                                                                                                            |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Positive (>0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1. Try to dissolve the peptide in water first.<br>2. If water fails, try dissolving the peptide in a 10%-30% acetic acid solution.<br>3. If the peptide still does not dissolve, try dissolving the peptide in a small amount of DMSO.                                                                                                                                                                                                                                                   |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |
|                           | Zero (=0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1. Try to dissolve the peptide in organic solvent (acetonitrile, methanol, etc.) first.<br>2. For very hydrophobic peptides, try dissolving the peptide in a small amount of DMSO, and then dilute the solution with water to the desired concentration.                                                                                                                                                                                                                                 |              |          |              |                   |                                             |    |                  |                                                                |    |                    |                                                                                                                                       |   |



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|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| References            | [1]. Shi X, et al. Rat hippocampal proteomic alterations following intrahippocampal injection of amyloid betapeptide (1-40). Neurosci Lett. 2011 Aug 15;500(2):87-91.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 实验参考:                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Animal Administration | Eight-week-old male Sprague-Dawley rats (n=14) weighing 200 to 220 g are used in this study. The rats are housed in plastic cages with food and water supplied ad libitum, and are maintained on a 12-h light/dark cycle at room temperature (21 to 23°C). 14 rats are randomly divided into two groups: (1) Milli-Q water-injected rats serve as the control group and (2) fibrillar neurotoxic Amyloid $\beta$ -peptide (1-40) (rat) injected rats serve as the Amyloid $\beta$ -peptide (1-40) (rat) group. Fibrillar Amyloid $\beta$ -peptide (1-40) (rat) or Milli-Q water (2 $\mu$ L) is injected at a flow rate of 0.5 $\mu$ L/min. Following injection, the needle is maintained in place for 5 min prior to its slow extraction. A second injection is also administered at the same coordinate in the opposite hemisphere. The behavioral performances of animals are assessed by the step-down passive avoidance test and Morris water maze test <sup>(1)</sup> . |
| References            | [1]. Shi X, et al. Rat hippocampal proteomic alterations following intrahippocampal injection of amyloid betapeptide (1-40). Neurosci Lett. 2011 Aug 15;500(2):87-91.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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