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# α-天门冬氨酰二肽酶及其进化酶的FT-IR 研究

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用分子定向进化技术,在酶活力和热稳定性双重选择压力下,筛选到了一株Kcat/KM是天然酶47倍的进化酶。用FT-IR方法,测定了α-天门冬氨酰二肽酶及其进化酶的酰胺I带图谱,定量估算了天然酶和进化酶的各种二级结构含量。天然酶中,β折叠结构含量为28.5%,α螺旋结构含量为33%,这与园二色谱测量α螺旋结构为33%的结果有很好的一致,剩余的残基形成不同类型的转角和无规结构,其总含量为38.5%。在进化酶中,β折叠结构含量为26.8%,α螺旋结构含量为31%,其它结构为不同类型的转角和无规结构?熏含量为42.2%。

# FT-IR STUDIES OF α-ASPARTYL DIPEPTIDASE AND ITS EVOLUTIONAL ENZYME

Under double screen pressure of specific activity and thermo stablity, an evolved α-aspartyl dipeptidase, with 47 folds higher activity than its wild type ancestor, was obtained. By using FT-IR, the secondary structure of α-aspartyl dipeptidase and its evolutional enzyme were studied. It is found that α-helix structure is 31%,β-sheet content is 26.8% while turn and random coil component are 42.2% in the evolutional type of α-aspartyl dipeptidase .In the wild type enzyme, α-helix structure is 33%, β-sheet content is 28.5% and turn and random coil are 38.5%.These structure changes lead to arise the flexibility of evolutional type and adaptability to substrate.

## 关键词

α-天门冬氨酰二肽酶(α-aspartyl dipeptidase); 进化酶(Evolutional enzyme); FT-IR; 二级结构(Secondary structure)