18th National and 3rd International Conference of Iranian Biophysical chemistry

هجدهمین همایش ملی و سومین همایش بین المللی بیوشیمی فیزیک ایران

25-26 Des, 2024, University of Hormozgan

۶-۵ دی ماه ۱۴۰۳، دانشگاه هرمزگان

Kinetics of Caspase7 Thermal Inactivation

Fatemeh Zaarea*, Jamshid Davoodi

Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

Abstract

Caspase 7 is a cysteine protease that induces programmed cell death in the internal pathway of apoptosis. The active enzyme consists of a homodimer of a hetero dimer. Thus, we sought to determine the mechanism of inactivation, i.e. aggregation versus the loss of the qurternary structure. For this purposee, recombinant caspase7 protein was expressed and purified by affinity chromatography method. The purified enzyme was subjected to elevated temperatures for a period of 0 to 16 hours. Then the enzymatic activities of aliquates withdrawn at certin time points were measure by the hdrolysis of the chromogenic substrate DEVD-pNA monitored at 405 nm. The enzyme was completely inactive following 10 hours incubation at 37 degrees. SDS-PAGE analysis of the samples revealed no hydrolysis of the proteins due to self celavage or by proteases that migh be presnt as minor impurities. Analysis of the kinetics of enzyme inactivation by fitting to 1st and 2st degree equations showed that that enzyme inactivation follows the 1st degree equation. This indicates that either the hetero dimer is being dissociated or homodimer is falling apart leading to loss of activity.

Key words: Caspase7, Inactivation, Denaturation

References

References section, the last part of the paper which is not given a title number, are listed and mentioned according to their sequence in the context.

Mentioning each reference within the text must be provided with the sequence number inside brackets.

Font used for English references will be (Time New Roman 11pt).

After identifying each reference (6pt), a spacing within the next reference is required.

Specifications of each reference have to be complete and standard like samples presented below:

[1] Dicleli M, Bruneau M. Seismic performance of single-span simply supported and continuous slab-on-girder steel highway bridges. Journal of Structural Engineering, ASCE; 121(10): 1497-1506, 1995.

[2] AASHTO. LRFD bridge design specifications (4th ed.). Washington (DC): American Association of State Highway and Transportation Officials; 2007.

[3] Chopra AK. Dynamics of structures: Theory and applications to earthquake engineering (2nd ed.), Prentice Hall, Englewood Cliffs, 2001.

[4] Computers and Structures, Inc. SAP2000, version 7.4, Integrated structural analysis and design software. Berkeley, CA; 2000.