研究論文

## 納豆抽出成分による抗がん作用機構の解析

畠 山 詩 織<sup>1</sup>, 加 福 万 愉<sup>1</sup>, 岡 本 知 也<sup>1</sup>, 柿 崎 友 佳<sup>1</sup>, 島 崎 奈 々 <sup>1</sup>, 藤 江 望 未<sup>1</sup>, 高 橋 将 太<sup>1</sup>, 仲 山 真 弘<sup>1</sup>, 田 川 博 之<sup>23</sup>, 小松田 敦<sup>23</sup>, Ewa Grave<sup>1</sup>, 涌 井 秀 樹<sup>1,23</sup>, 伊 藤 英 晃<sup>1,3</sup>

## Studies on the Anticancer Mechanisms of the Natto Extract

Shiori Hatakeyama<sup>1</sup>, Mayu Kafuku<sup>1</sup>, Tomoya Okamoto<sup>1</sup>, Yuka Kakizaki<sup>1</sup>, Nana Shimasaki<sup>1</sup>, Nozomi Fujie<sup>1</sup>, Shohta Takahashi<sup>1</sup>, Masahiro Nakayama<sup>1</sup>, Hiroyuki Tagawa<sup>2,3</sup>, Atsushi Komatsuda<sup>2,3</sup>, Ewa Grave<sup>1</sup>, Hideki Wakui<sup>1,2,3</sup> and Hideaki Itoh<sup>1,3,†</sup>

We have investigated anti-cancer properties of Natto, a traditional Japanese food made from soybeans fermented with *bacillus subtilis*. The protein related ingredient was partially purified from Natto using an ammonium sulphate fractionation and added to HeLa cells. As a result, all cancer cells perished the next day. On the other hand, if only a protein related extract from boiled beans and fermented soybean bacterium was added, there were no changes in cell growth. We purified and investigated amino acid sequence of anti-cancer peptide from Natto using Butyl Sepharose column chromatography of 5-kDa peptide. The peptide appeared to be a new antibacterial peptide.

Key Words: Natto, fermented soybeans, anti-cancer effect, antibacterial peptide, fermented food.