ω-3 脂肪酸およびその代謝物のがん細胞増殖抑制能の評価

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Evaluation of tumor cell growth inhibition of ω-3 fatty acids and their metabolites ([1]*Graduate School of science and Technology, Tokyo University of science*, [2]*Reserch Institute for Science & Technology, Tokyo University of science*) ○Miki Tsuruoka,[1] Toshifumi Tojo,[1] Takeshi Kondo,[1,2] Makoto Yuasa[1,2]

ω-3 fatty acids such as DHA and EPA are essential fatty acids that sustain life activities. These fatty acids are metabolized in vivo and converted to bioactive substances such as Resolvin E1 and Maresin1, which have anti-inflammatory activity. Although ω-3 fatty acids and bioactive substances have been reported to show tumor cell growth inhibition, they have not been systematically studied thoroughly. In this study, we tried to investigate the tumor cell growth inhibitory potential of ω-3 fatty acids and their metabolites and to determine the structure-activity relationship. The ω-3 fatty acids (DHA and EPA) and the bioactive substances (Resolvin E1 and Maresin1) were added to a human breast cancer cell (MCF-7) and incubated for 24 hours, after which Alamar Blue was added and the fluorescence intensity was measured. The obtained fluorescence intensity was used to evaluate the inhibition of cancer cell proliferation, and a concentration-dependent inhibition of cancer cell proliferation was observed. As a result, cancer cell growth was suppressed in a concentration-dependent.
Keywords : DHA; EPA; tumor cell growth inhibition

DHA や EPA などの ω-3 脂肪酸は生命活動を維持する必須脂肪酸である。ω-3 脂肪酸は生体内で代謝され、抗炎症作用などを有 ˙る Resolvin E1 や Maresin1 などの生理活性物質に変換される。ω-3 脂肪酸や生理活性物質は多様ながん細胞に対して増殖抑制能を持つことが報告されている [1)]が、その系統的な研究は十分に行われていない。本研究では、ω-3 脂肪酸とその代謝物のがん細胞増殖抑制能を評価し、構造活性相関を明らかにすることを目的としている。ω-3 脂肪酸である DHA、EPA と生理活性物質である Resolvin E1、Maresin1 をヒト乳がん細胞株（MCF-7）に添加し、24 時間インキュベーションした後に Alamar Blue を添加して蛍光強度を測定した(図 1)。得られた蛍光強度からがん細胞増殖抑制能を評価したところ、すべてにおいて濃度依存的ながん細胞増殖抑制がみられた。

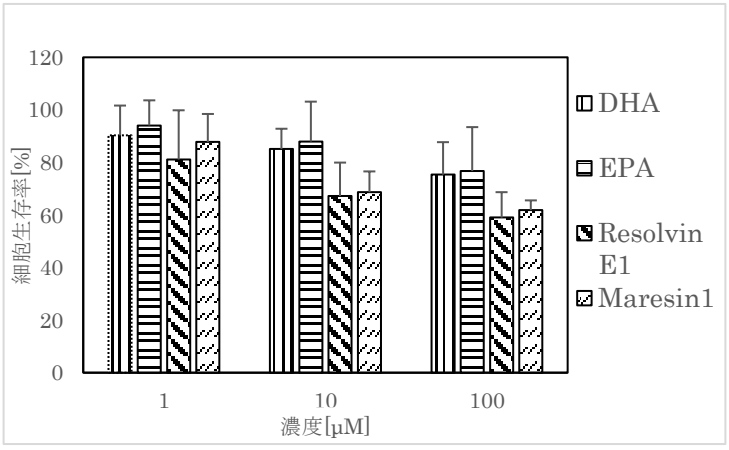

図 1　MCF-7 における細胞増殖抑制能の評価結果

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