elderly. The recent study suggested that the carbohydrate moiety of oral epithelial cells was strict requirement for inhibition of growth of *C. albicans in vitro*. In the present study, to investigate the mechanisms by which oral epidermal cells inhibit the growth of *Candida*, we examined the effect of hyaluronan (HA), which is one of cell surface carbohydrate moiety, on growth *C. albicans*.

4. A local delivery system for cytotoxic agents to tumors by focused sonoporation

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超音波を用いた新しい薬物・遺伝子導入法であるソノポレーション法を癌治療に応用できないか検討した。 *In vitro* および *in vivo* の実験系で扁平上皮癌細胞に数種類の物質を導入し、致死活性の発現を調べた。

In vitro の実験系で、超音波発振装置を用いヒト歯肉扁平上皮癌細胞 Ca9-22 cell に Bleomycin および細胞毒素関連遺伝子 (pVIVO1-*cdtB*) を導入し、細胞の状態を観察した。さらに、同装置を用いて担癌マウスに Bleomycin および pVIVO1-*cdtB* を導入し、抗腫瘍効果を検討した。

In vitro および *in vivo* の実験系で Bleomycin および pVIVO1-*cdtB* を Ca9-22 cell に導入したところ、強い致死活性の発現が認められた。

ソノポレーション法は、これまで報告されてきた導入法より低侵襲であり、安全で治療効果が高い癌治療法としての可能性が示唆された。

A local delivery system for cytotoxic agents to tumors by focused sonoporation

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Recently, a new potent nonviral gene transfer method known as 'sonoporation' has been developed. We used sonoporation to deliver bleomycin or transfect a *cdtB*-expressing plasmid into human gingival squamous carcinoma cell line, Ca9-22, and examined cell viability *in vitro* and *in vivo*. We found that the administration of bleomycin or *cdtB*-expressing plasmid followed by sonoporation induced marked growth inhibition of Ca9-22 cells, and apoptotic cells were also observed *in vitro* and *in vivo*. These findings suggest that local administration of cytotoxic agents with sonoporation is a useful method for molecular cancer therapy.