

***In vitro* and *in vivo* characterizations of established human follicular carcinoma cell line derived from thyroid cancer: A novel model for well-differentiated thyroid malignant tumor**

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A continuous cell line, named SMC R86 F1, was established from a surgically resected primary thyroid lesion. The cell grew as an adhering monolayer with a doubling time of about 25 hours in modified Eagle's medium supplemented with fetal bovine serum. When the cells were transplanted into athymic nude mice, tumors developed at the site of inoculation. The cells not only showed epithelial origin upon light and electron microscopic examination but also possessed a biosynthetic marker human thyroglobulin (hTg). In order to examine the iodide trapping ability of the xenografts, radioiodine at doses of 3.7 MBq was injected into the peritoneum of ^{131}I treated nude mice bearing xenografts at about 4 weeks after the cell inoculation. Judging from the results of scintigraphic, autoradiographic and biodistribution studies, viable tissue of the xenografts in the treated mice had the ability to trap radioiodine. Histological sections of the xenografts resected from the treated mice consisted of follicle-like and trabecular growing structures, and immunohistochemically the cytoplasm of the tissues was hTg positive. The cells possessed the ability to trap radioactive iodine *in vitro* under the control of TSH. In addition, the expression of iodinated 19S Tg in the cell cytoplasm in the monolayer cultures was revealed by immunoblotting and autoradiographic assays. These observations provide strong evidence that the SMC R86 F1 cell line possesses well-differentiated properties of the malignant thyroid follicular epithelial cells.

Key words: well-differentiated thyroid carcinoma cell line, follicular formation, iodine organization