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Correlation c-Fos Expression with Radioiodine Effect in Breast Cancer Cell Lines



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Background

- Radioiodine is used as an adjuvant therapy for well-differentiated thyroid cancer patients.
- Breast cancer are reported of being able to uptake radioiodine.
- The study aim is to investigate the uptake of radioiodine in breast cancer cell lines

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- Two types of breast cancer cell lines were used in this study, such as MCF-7 (luminal A subtype), and SKBR-3 (HER2 subtype).
- A normal keratinocyte cell line was used as a control.
- The cell lines were treated with ;
 7.4×10^4 Becquerel/well of NaI-125 \rightarrow radioiodine uptake.
 7.4×10^5 of NaI-131, \rightarrow the toxicity of radioiodine.

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Results

Uptake :

- Radioiodine uptake in SKBR3 cells are significantly higher (1765 ± 44 kcpm) than in HaCaT cells ($p < 0.05$);
- MCF-7 cells uptake is found to be insignificant with HaCaT cells.



Cell Line	NaI-125	MCF-7	HaCaT
1	1764	1490	930
2	1711	1544	1501
3	1783	1473	954
4	1813	1548	1529
5	1787	1538	1543
6	44	43	77

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Clonogenic Assay

- The rate of the cell to split declined significantly $\rightarrow 52.6\% \pm 8.5\%$ and $22.6\% \pm 4.8\%$ (SKBR3 and MCF-7 cells respectively);
- Radioiodine has a significant toxic effect on breast cancer compared with to the normal cell, $p < 0.05$.

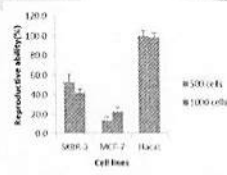



Fig. 3. Reproductive ability (%) of SKBR3, MCF-7 and HaCaT cells after treatment with 7.4×10^4 Bq/well of ^{125}I for 7 days at 37°C . MCF-7 and SKBR3 cells have lower reproductive abilities than HaCaT cells at $p < 0.05$.

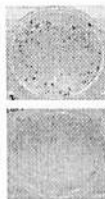
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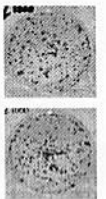
SKBR3



MCF7



HaCaT



A : Control
 B : ^{131}I Treatment

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Conclusion

- ◆ Breast cancer cells are able to take up of radioiodine and cell ability for self-divide reduced significantly.
- ◆ The normal cell showed un significantly effected of their proliferation after radioiodine exposure.
- ◆ Both types of breast cancer cells are sensitive to radioiodine.
- ◆ This will lead to the potential use of I-131 as adjuvant therapy in breast cancer disease as well as in the treatment of thyroid cancer

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Thank You

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