



# 第85回NM-GCOEセミナー

## James E. Trosko 先生

(Professor, Michigan State University, USA)

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医学部 5号館  
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### ~Human Adult Stem Cells in Human Cancer and Human Aging: The Role of Evolution, Warburg and Barker Hypotheses in Understanding Stem Cell Biology ~



Professor James Trosko started his seminar showing how is the two hypotheses, Barker hypothesis and Warburg hypothesis is, might be linked in term of supporting abnormal development. Both of them agree on one concept that the origin of most chronic diseases, such as cancer, is stem cells. "Cancer is not a result of dedifferentiation of differentiated cells though it is a blockage of stem cells differentiation in tissue" he added.

Prof. James also stated that many abnormal developments can be due to either altering in stem cells number or stem cells function that might be due to early exposure to variety of factors in early life.

Stem cells owes a unique cell division, its divide asymmetrically to produce two cells with different fate, one cells that is identical to the mother cells and the other one goes through differentiation.

"Here is the Nobel prize question" prof. James said with enthusiasm looking at

the young students, "what make stem cells divide this way? What is the extracellular signal that turns on asymmetrical division and turn off symmetrical one?" Well, am sure there is someone reading those lines is up to know.

The two concept "cancer stem cells" and "cancer non-stem cells", how are they differing? Many patients went through, what they thought, a successful chemotherapy but they has been struck again with tumors. Tumor composes of two cell population, cancer non-stem cells and cancer stem cells. In which the later one, express ABCG2 membrane transporter protein that pump out most of anticancer chemotherapeutic drugs and though might not kill it.

This seminar was very informative, presented by a pioneer in his field. It was great honor for me to get to attend his lectures.

Shahed Al Sariera (細胞組織学分野・大学院生)



組織幹細胞とがん幹細胞との関連性について最新の実験結果を交えて詳細にお話くださり、再生医療研究を進展させていく事にもなって考慮しなければならぬ点も多く、大変有意義なお時間でした。

stem cell に関わる発育異常などを写真を交えて説明して頂きとてもわかりやすかった。Oct-4 と cancer stem cell の関わりについて興味をもった。

Barker 仮説からプロジェリアまで、広い範囲の臨床的なトピックスについて stem cell の質的および量的な異常という切り口で説明され、大変興味深く聴講しました。種々の実験も動画などでわかりやすく説明され、stem cell の研究について知識と興味が広がる内容でした。