Cancer Stem Cell Workshop: Status of CSC as Markers in Oncology

Max Wicha, University of Michigan, Chair
J. M. Jessup, CDP/NCI, Co-Chair

Overview:
This workshop is focused on facilitating the use of cancer stem cells (CSC) as markers of outcome and response to therapy. It will bring together 30 – 40 investigators to review the current status of CSC in clinical trials, to define the barriers for evaluating the CSC hypothesis and then to consider how to move the field forward. Since this workshop will focus on CSC as markers of prognosis and/or response, it will address the assays and technologies to reliably detect CSC and study designs for assessing clinical utility rather than on the biology and specific treatment of CSC. The workshop will focus on breast cancer and the leukemias and multiple myeloma in depth as paradigms for testing the stem cell hypothesis with experiences gleaned from other human malignancies. The workshop will also analyze in depth whether markers can be identified for individual tumor types and then whether optical imaging technologies are sufficiently reliable to support measurement of CSC in clinical samples. Finally, clinical trial designs that incorporate CSC along with the regulatory issues surrounding clearance or approval of CSC for clinical use will be studied. It is expected that the outcome of the workshop will be publications with recommendations for moving the field forward.

Goal:
The goal is to bring together investigators to assess the potential clinical utility of CSC as markers for prognosis and response to therapy in the practice of oncology.

Format: a day and a half meeting at the Neuroscience Center, Rockville MD, January 17 and 18, 2008.
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Agenda

Day One January 17, 2008

7:30 AM   Registration and Light Breakfast
8:00 AM   Welcome & Goals - Dr Jessup
8:10 AM   Opening Remarks     Dr. Niederhuber
8:20 AM   Introductions      All

Session 1

8:30 AM   CSC in Human Breast Cancer
- Max Wicha, Session Chair

8:30 AM   M. Wicha  Evaluation of CSC in Breast Cancer
8:50 AM   D. Hayes  How to Evaluate CSC in the Clinic - the CTC Experience
9:10 AM   J. Chang  The CSC Response to Neoadjuvant Therapy
9:30 AM   Discussion

10:00 AM  Break

Session 2

10:30 AM  CSC in Human Hematopoietic Malignancies
- Bill Matsui, Session Chair

10:30 AM  J. Dick   CSC in Human Leukemias: Models and Validation of the Stem Cell Hypothesis
10:50 AM  F. Michor  Mathematical Modeling of Stem Cell Responses to Therapy
11:10 AM  W. Matsui  CSC in Human Multiple Myeloma: Validation of CSC Under Clinical Conditions
11:30 AM  Discussion
12:00 Noon Lunch (on your own)

Session 3

1:00 PM  Advantages/Disadvantages of Assays and Models for Human Stem Cells
- Peter Dirks, Session Chair

1:00 PM  Peter Dirks  Human CSC in Glioblastoma
1:20 PM  D. Simeone  Human CSC in Pancreas Cancer
1:40 PM  D. Tang  Human CSC in Prostate Cancer
2:00 PM  C. O’Brien  Human CSC in Colon Cancer
2:20 PM  S. Gambhir  PET and Other Imaging Models for Human CSC
2:40 PM  M. F. Clarke  Models to define Human CSC
3:00 PM  W. El-Deiry  Imaging of CSC in Animal Models
3:20 PM  Discussion
3:40 PM  Break

Session 4

4:00 PM  Methods to Identify CSCs in Clinical Specimens - Flow Cytometry
- S. Tanner, Session Chair

4:20 PM  G. Nolan  Use of Flow Cytometry to Identify Human CSC
4:40 PM  S. Tanner  MS Meets Flow Cytometry (I know, need a formal title)
5:00 PM  Discussion
5:30 PM  Adjourn
Day Two - January 18, 2008

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Agenda (Cont’d)

7:30 AM Light Breakfast

Session 5
8:00 AM Methods to Identify CSCs in Clinical Specimens - Tissue Imaging
- Max Loda, Session Chair
8:00 AM D. Rimm Multiparameter Tissue Imaging To Identify Cell Subsets in Human Tissues
8:20 AM M. Loda Detection of CSC by Multiplex Spectral Imaging
8:40 AM S. Nie Reproducibility of Multiplex Spectral Imaging
9:00 AM D. Farkas Issues with Evaluation of Cell Subsets by Multiplex Spectral Imaging
9:20 AM R. Cote Imaging of Metastatic Precursor Cells
9:40 AM Discussion
10:00 AM Break

Session 6
10:30 AM Design of Clinical Trials to Measure Numbers of CSC
- Kim Jessup, Session Chair
10:30 AM D. Berry Adaptive Design of Trials involving Cancer Stem Cells as Markers
10:50 AM R. Becker/ N. Hanna OIVD/CDRH Evaluation Criteria for In Vitro Devices/Assays
11:10 AM R. Sridhara CDER’s Evaluation of Predictive Markers
11:30 AM R. Dagher CDER’s Evaluation of Response and Surrogate Markers
11:50 AM L. McShane Marker Development & Trial Designs to test CSC
12:10 PM Discussion
12:30 PM Wrap-Up and Next Steps
1 PM Adjourn