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Session 1: Opening Plenary Session

Monday 7th November 2011. Moderator: Mark G. Glassy

[9.30–10.00]

'Antibody enhanced stem cell therapy'

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The success of Hematopoietic Stem cell Transplantation (HSCT) requires homing, retention and differentiation of hematopoietic stem cells (HSC). This process is mediated via soluble factors (e.g., chemokines and cytokines) as well as cellular adhesion molecules on the surface of HSC and the bone marrow microenvironment. Adequate sources of HSC, plus their efficient delivery, retention and engraftment, remain major limitations of this therapy. To address these problems we have developed a proprietary approach to target HSC to host tissues using bispecific antibodies (BiAb).

This approach has been validated using a xenogeneic rodent model of ischemia-reperfusion. Murine Lin-/Sca-1+ bone marrow cells, human CD34+ cells, and CD3+ human T cells derived from human peripheral blood, can be antibody-targeted to injured myocardium when injected intravenously. A pair of antibodies is chemically heteroconjugated to target the cells to specific antigens: a combination of anti-c-kit and anti-VCAM-1 for Lin-/Sca-1+ cells, anti-CD45 and anti-myosin light chain (MLCBi) for human stem cells, and anti-CD3 and anti-ICAM-1 for human T cells. Each of the BiAbs augmented targeting of the respective cells via adhesion or injury molecules expressed by injured cardiac tissue. More importantly, human CD34+ cells armed with MLCBi showed therapeutic efficacy in both rat and mouse models of ischemia/reperfusion. These studies support the development of this technology to augment HSCT in humans. Progress towards this goal will be described

[10.00–10.30]

'Why microbes have been neglected so far by mAb developers?'

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Abstract not provided.

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