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Identification and Migration of Fused BM Cells In-Vivo

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Poster Presentation P35

IDENTIFICATION AND MIGRATION OF FUSED BM CELLS IN-VIVO

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Adult hematopoietic cells cannot be re-programmed into differentiating into another lineage except in very rare circumstances. The process is very inefficient and does not yield sufficient cell numbers for any meaningful application in therapies. However, it is possible that through fusion the necessary reprogramming of cells for therapeutic use can be accomplished. We hypothesized that transplanted BM will fuse with peripheral cells in vivo which could lead to regenerative capabilities and altered immogenicity of these cells. BM cells from a mouse transgenic for the expression of cre recombinase were isolated and then injected intravenously into two ROSA 26 mice that were transgenic for two loxP sites around a stop cassette in the coding region of a lacZ reporter gene (β-gal). In the event of fusion the cre recombinase will excise the floxed stop cassette allowing for expression of the reporter gene. We reasoned that if cells stained positive for this reporter gene then fusion must have occurred. One mouse was sacrificed at 7 days and the other was sacrificed at 21 days. Cells from the liver, spleen, and BM were isolated and stained for β-gal and flow cytometry was run. Results show between 10%-12% of cells stained positive for β-gal confirming that fusion has occurred. Other peripheral tissue was removed, frozen, and then slides were prepared using a cryostat. These slides were then fixed, stained for β-gal, and examined using light microscopy. Data shows positive staining cells in many peripheral tissues confirming that fusion has occurred. These newly generated fusion cells can now be isolated and their regenerative capabilities and immogenicity determined leading to possible clinical applications.