27.CD34^{+}/CD38^{-} acute myelogenous leukemia cells aberrantly express CD82 adhesion molecule.

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To identify molecular targets in leukemia stem cells (LSCs), this study compared the protein expression profile of freshly isolated CD34^{+}/CD38^{-} cells with that of CD34^{+}/CD38^{+} counterparts from individuals with acute myelogenous leukemia (n=2, AML) using isobaric tags for relative and absolute quantitation (iTRAQ). A total of 98 proteins were overexpressed, while six proteins were underexpressed in CD34^{+}/CD38^{-} AML cells compared with their CD34^{+}/CD38^{+} counterparts. Proteins overexpressed in CD34^{+}/CD38^{-} AML cells included a number of proteins involved in DNA repair, cell cycle arrest, gland differentiation, anti-apoptosis, adhesion, and drug resistance. Aberrant expression of CD82, a family of adhesion molecules, in CD34^{+}/CD38^{-} AML cells was noted in additional clinical samples (n=12) by flow cytometry. Importantly, down-regulation of CD82 in CD34^{+}/CD38^{-} AML cells by a short hairpin RNA (shRNA) stimulated their migration via up-regulation of matrix metalloproteinases 9 (MMP9), as assessed by transwell assay and real time RT-PCR, respectively. Moreover, we found that down-regulation of CD82 in CD34^{+}/CD38^{-} AML cells by an shRNA significantly impaired engraftment of these cells in severely immunocompromised mice. Taken together, aberrant expression of CD82 might play a role in adhesion of LSCs to bone marrow microenvironment. CD82 could be an attractive molecule target to eradicate LSCs.