**Supplemental table 1.** Primers used for qPCR amplification.

|  |  |  |  |
| --- | --- | --- | --- |
| Gene  | Forward sequence (5′-3′) | Reverse sequence (5′-3′)  |  |
| LGALS1 | CCTGGAGAGTGCCTTCGAGT | CACACGATGGTGTTGGCGTC |
| CD304 | CCAGGTCGAATCCGATCCT | CGCTGTCGGTGTAAAAAACCA |
| GAPDH | ACCCACTCCTCCACCTTTGA | CATACCAGGAAATGAGCTTGACAA |

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**Supplemental figure 1.** Expression of *LGALS1* and *CD304* in HMCLs and M-MDSC from pre-ASCT patients. **A.** Schematic showing of the ASCT procedure and patient sample collection.The expressions of *LGALS1* (**B**) and *CD304* (**C**) mRNA were evaluated by real-time PCR using 5 HMCLs and 3 M-MDSCs from pre-ASCT patients.



**Supplemental figure 2.** *In vitro* effects of galectin-1 inhibition on HMCLs growth.Anti-proliferative effects of OTX008 in five HMCLs after 48h treatment were shown.



**Supplemental figure 3.** Effects of OTX008 on galectin-1 protein expression. **A,** Galectin-1 levels in the two HMCLs treated for 72 h with different concentrations of OTX008. **B,** Galectin-1 levels in JJN3 cells treated for 48h with different concentrations of OTX008. The data are presented as the mean ± SEM. \*P < 0.05; \*\*\*P < 0.001 (one-way ANOVA).



**Supplemental figure 4.** The 2 HMCLs differently promote the secretion of galectin-1 in vitro. **A,** Healthy PBMCs were co-culture with RPMI8226 or JJN3 for 5 days and confirmed the presence of galectin-1 in culture media. **B,** HLA-DRlow/- cells from pre-ASCT patients were co-culture with RPMI8225 or JJN3 for 2 days with or without OTX008, and galectin-1 levels were measured in culture media. **C,** siRNA- mediated knockdown of galectin-1 was confirmed by real-time PCR (left) and western blotting (right). The data are presented as the mean ± SEM. \*P < 0.05; \*\*P < 0.01; \*\*\*P < 0.001 (one-way ANOVA).



**Supplemental figure 5.** *In vitro* effects of CD304 inhibition on HMCLs growth.Anti-proliferative effects of EG00229 in HMCLs after 24h treatment.



**Supplemental figure 6.** Correlation between galectin-1 and frequency of pre- and post-ASCT E-MDSCs was analyzed respectively. The Spearman correlation coefficient was used to evaluate the association of continuous variables.



**Supplemental figure 7. A.** Kaplan-Meier estimated curves represent the probability of time to progression (TTP) and the overall survival (OS) of MM patients according to level of post-ASCT serum galectin-1 as determined by lower quartiles (Q1-Q3, black) and upper quartile (Q4, red). A log-rank test was used to determine differences between the survival curves. **B.** The Correlation between the malignant PCs *LGALS1* and circulation and bone marrow plasma galectin-1 was analyzed respectively. The Spearman correlation coefficient was used to evaluate the association of continuous variables.