**Additional file 4**. Random walk betweenness centrality of cell types for validation of MCDM in joint tissue. Cell-cell interactions for the validation MCDM were predicted from cell-specific scRNA-seq DEGs by using a publicly available mouse ortholog ligand-receptor pairs database (Methods). Weights were based on the number of cells of each cell type and its number of predicted upstream regulators.

cell	rw_score_ligand_receptor
gran	0,834270517
adipo	0,095489052
myelo	0,08753179
macro	0,009663604
treg	0,00128887
osteo	0,001205998