Supplementary Materials

Table S1. List of individual drugs for multiple myeloma and corresponding drugs in RxNorm.

#	Treatment Class Name	Drugs in the Treatment Class
1	**Alkylating drug**	melphalan, cyclophosphamide, bendamustine, busulfan, chlorambucil, procarbazine, carmustine
2	**Kinase inhibitor**	ibrutinib, everolimus, trametinib
3	**Vinca alkaloid**	vincristine, vinorelbine, vinblastine
4	**Anthracycline Topoisomerase inhibitor**	doxorubicin, pegylated liposomal doxorubicin, doxorubicin liposomal, idarubicin
5	**Nucleoside metabolic inhibitor**	cytarabine
6	**Proteasome inhibitor**	bortezomib, ixazomib, carfilzomib
7	**Thalidomide analog**	lenalidomide, thalidomide, pomalidomide
8	**Microtubule inhibitor**	paclitaxel, docetaxel
9	**Anti-BCMA antibody**	belantamab mafodotin, teclistamab
10	**Topoisomerase inhibitor**	etoposide
11	**Histone deacetylase inhibitor**	panobinostat, vorinostat
12	**Platinum-based drug**	cisplatin, carboplatin
13	**CD38-directed cytolytic antibody**	daratumumab, isatuximab
14	**HER2/neu receptor antagonist**	pertuzumab, trastuzumab
15	**CD20-directed cytolytic antibody**	rituximab
16	**SLAMF7-directed immunostimulatory antibody**	elotuzumab
17	**BCL-2 inhibitor**	venetoclax
18	**Nuclear export inhibitor**	selinexor
19	**Macrolide antimicrobial**	clarithromycin
20	**Folate analog metabolic inhibitor**	methotrexate
21	**Calcineurin inhibitor immunosuppressant**	cyclosporine

Table S2. List of individual drugs for asthma and corresponding drugs in RxNorm.

#	Treatment class	Drugs in treatment class
1	**LABA**	Salmeterol, Formoterol, Indacaterol, Vilanterol, Olodaterol
2	**LAMA**	Glycopyrronium, Umeclidinium, Glycopyrrolate, Aclidinium, Tiotropium
3	**LTRA**	Zafirlukast, Zileuton, Montelukast
4	**SCS**	Prednisone, Cortisone, Cortisone acetate, Prednisolone, Methylprednisolone, Deflazacort, Hydrocortisone, Dexamethasone
5	**ICS**	Fluticasone propionate, Budesonide, Triamcinolone, Mometasone furoate
6	**Biologics**	Dupilumab, Omalizumab, Mepolizumab, Benralizumab, Reslizumab, Tezepelumab
7	**Theophylline**	Theophylline
NB: Theophylline is technically a methylxanthine		

Table S3. Standardized Mean Differences (SMDs) for key baseline confounders across treatment comparisons.

	AntiCD38 + TA vs TA	**SLAMF7 + TA vs TA**	**AntiCD38 + PI vs PI**	**SLAMf7 + TA vs AntiCD38 + TA**	**SLAMf7 +TA vs AntiCD38 + PI**	**AntiCD38+PI vs AD+PI+TA**	**PI+TA vs AntiCD38+PI**
Line of Therapy	0.76	1.23	1.06	0.45	0.66	1.31	-1.15
Serum Protein Electrophoresis (Max last 90d)	-0.05	0.04	0.04	0.11	0.01	-0.07	0.13
IgG Level (Max,90d)	-0.01	-0.03	-0.07	-0.02	0.01	-0.17	0.20
Dexamethasone Treatment	0.28	-0.01	0.29	-0.29	-0.40	-0.01	-0.01
Platelet Count	0.04	0.11	0.10	0.05	-0.10	0.17	-0.17
Albumin Level	0.10	-0.02	-0.11	-0.09	0.11	-0.23	0.15

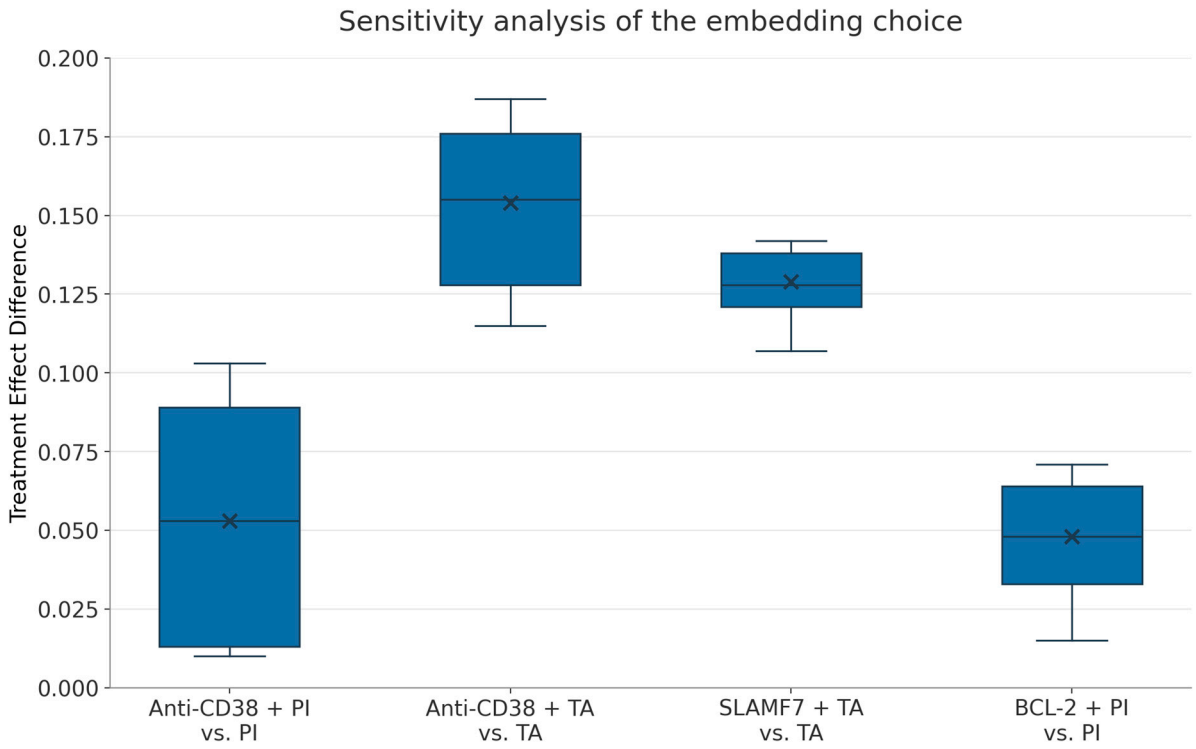


Figure S1. Sensitivity analysis of embedding model choice across multiple myeloma treatment comparisons.