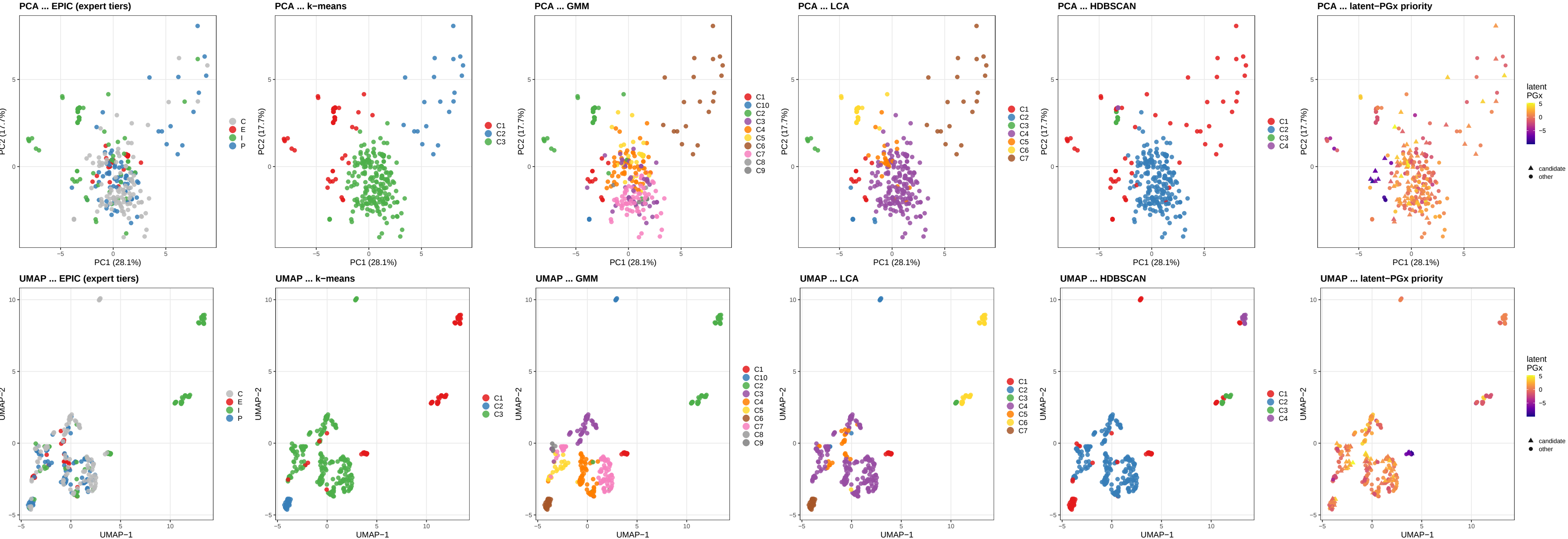


ABM Atlas ... PCA & UMAP projections of 300 ADR associations (36-feature model)

Top: PCA. Bottom: UMAP. Columns: expert EPIC tiers, four unsupervised classifiers, and the continuous latent-PGx prioritisation score (triangles = gated candidates).



ABM Atlas ... cluster names, EPIC overlap and description (v20, 34-feature model)

EPIC: E=Effect P=Predisposition I=Indication C=inConclusive. Overlap = % of each cluster's members falling in each expert EPIC tier.

Method	CI	n	Cluster name	EPIC	EPIC overlap % (E/P/I/C)	Description
KMEANS	C1	64	Canonical indication	I	E 0 / P 6 / I 86 / C 8	On-label drug-disease pair
KMEANS	C2	20	Rare-variant predisposition	P	E 0 / P 65 / I 10 / C 25	Drug-amplified, often rare-variant
KMEANS	C3	216	Heterogeneous / mixed	P	E 12 / P 29 / I 11 / C 48	Mixed parameter signature
GMM	C1	11	Indication (pleiotropic)	I	E 0 / P 9 / I 73 / C 18	On-label / common-variant indication
GMM	C2	50	Canonical indication	I	E 0 / P 0 / I 100 / C 0	On-label drug-disease pair
GMM	C3	46	Inconclusive / weak-evidence	P	E 15 / P 13 / I 2 / C 70	Low signal across all parameters
GMM	C4	55	Heterogeneous / mixed	P	E 16 / P 38 / I 14 / C 31	Mixed parameter signature
GMM	C5	27	Heterogeneous / mixed	P	E 37 / P 30 / I 15 / C 18	Mixed parameter signature
GMM	C6	20	Rare-variant predisposition	P	E 0 / P 65 / I 10 / C 25	Drug-amplified, often rare-variant
GMM	C7	76	Inconclusive / weak-evidence	I	E 0 / P 34 / I 9 / C 57	Low signal across all parameters
GMM	C8	2	Predisposition-leaning	P	E 0 / P 50 / I 0 / C 50	Drug-amplified, predominantly predisposition
GMM	C9	6	Predisposition-leaning	P	E 0 / P 50 / I 17 / C 33	Drug-amplified, predominantly predisposition
GMM	C10	7	Inconclusive / weak-evidence	C	E 0 / P 0 / I 0 / C 100	Low signal across all parameters
LCA	C1	11	Indication (pleiotropic)	I	E 0 / P 9 / I 73 / C 18	On-label / common-variant indication
LCA	C2	10	Inconclusive / weak-evidence	I	E 0 / P 10 / I 20 / C 70	Low signal across all parameters
LCA	C3	6	Canonical indication	I	E 0 / P 0 / I 100 / C 0	On-label drug-disease pair
LCA	C4	185	Heterogeneous / mixed	P	E 10 / P 31 / I 11 / C 49	Mixed parameter signature
LCA	C5	26	Heterogeneous / mixed	P	E 31 / P 27 / I 8 / C 35	Mixed parameter signature
LCA	C6	42	Canonical indication	I	E 0 / P 0 / I 98 / C 2	On-label drug-disease pair
LCA	C7	20	Rare-variant predisposition	P	E 0 / P 65 / I 10 / C 25	Drug-amplified, often rare-variant
HDBSCAN	C1	60	Heterogeneous / mixed	I	E 2 / P 28 / I 42 / C 28	Mixed parameter signature
HDBSCAN	C2	206	Heterogeneous / mixed	P	E 12 / P 30 / I 11 / C 47	Mixed parameter signature
HDBSCAN	C3	17	Canonical indication	I	E 0 / P 0 / I 100 / C 0	On-label drug-disease pair
HDBSCAN	C4	17	Canonical indication	I	E 0 / P 0 / I 100 / C 0	On-label drug-disease pair