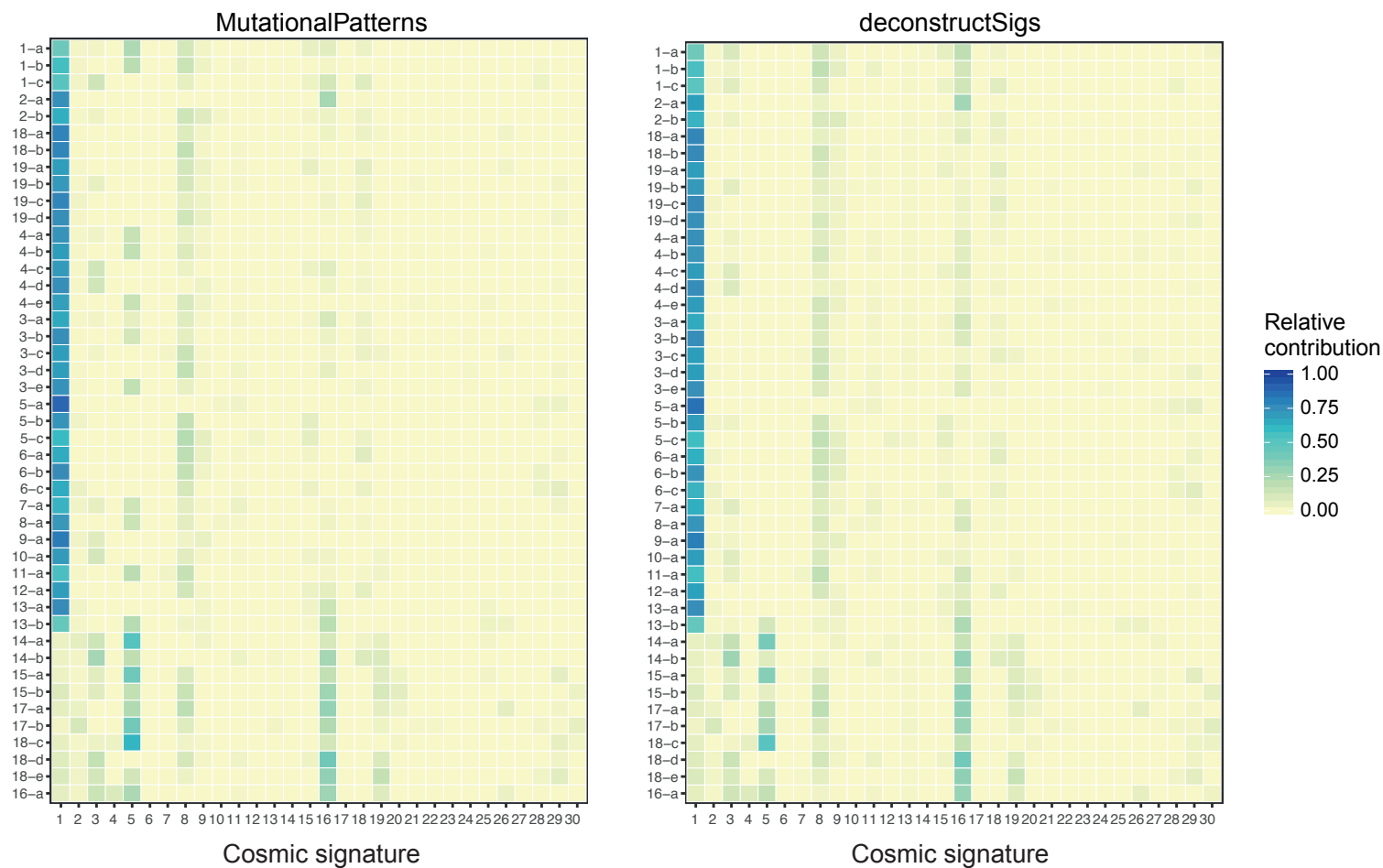
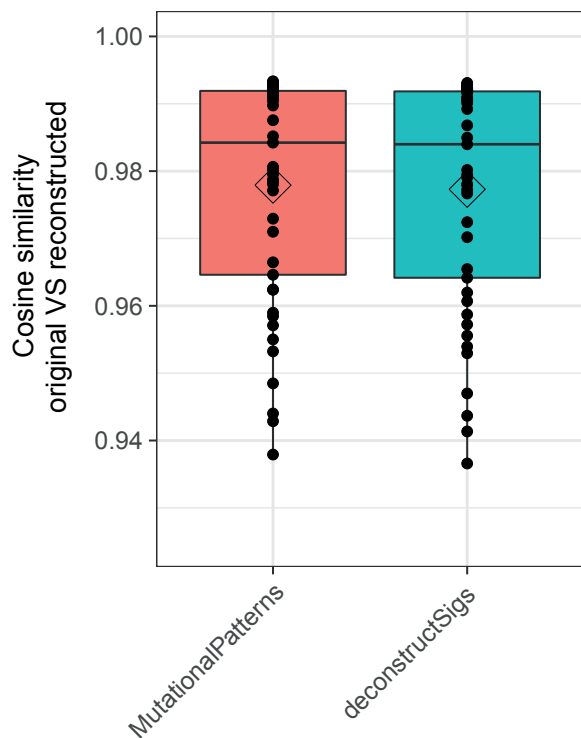


Fig. S1 Signature contributions as estimated by NMF and NNLS. Relative contribution of the three indicated mutational signatures (depicted in Fig. 1B) for each sample as estimated by NMF (left) and NNLS (right).

A**B****C**

	MutationalPatterns	deconstructSigs
COSMIC signatures similarity heatmap.	0.1 s	42.5 s
Runtime (45 VCFs)		

Fig. S2 Comparison between MutationalPatterns (fit_to_signatures) and deconstructSigs (whichSignatures). **a.** Relative contribution of all 30 COSMIC signatures for each sample, as found by MutationalPatterns (left) and deconstructSigs (right). **b.** Cosine similarity between the original and the reconstructed mutational profiles for MutationalPatterns and deconstructSigs. **c.** The runtime (elapsed time) in seconds to find the optimal linear combination of mutational signatures for 45 somatic mutation catalogs for both packages; MutationalPatterns is approximately 400 times faster than deconstructSigs.

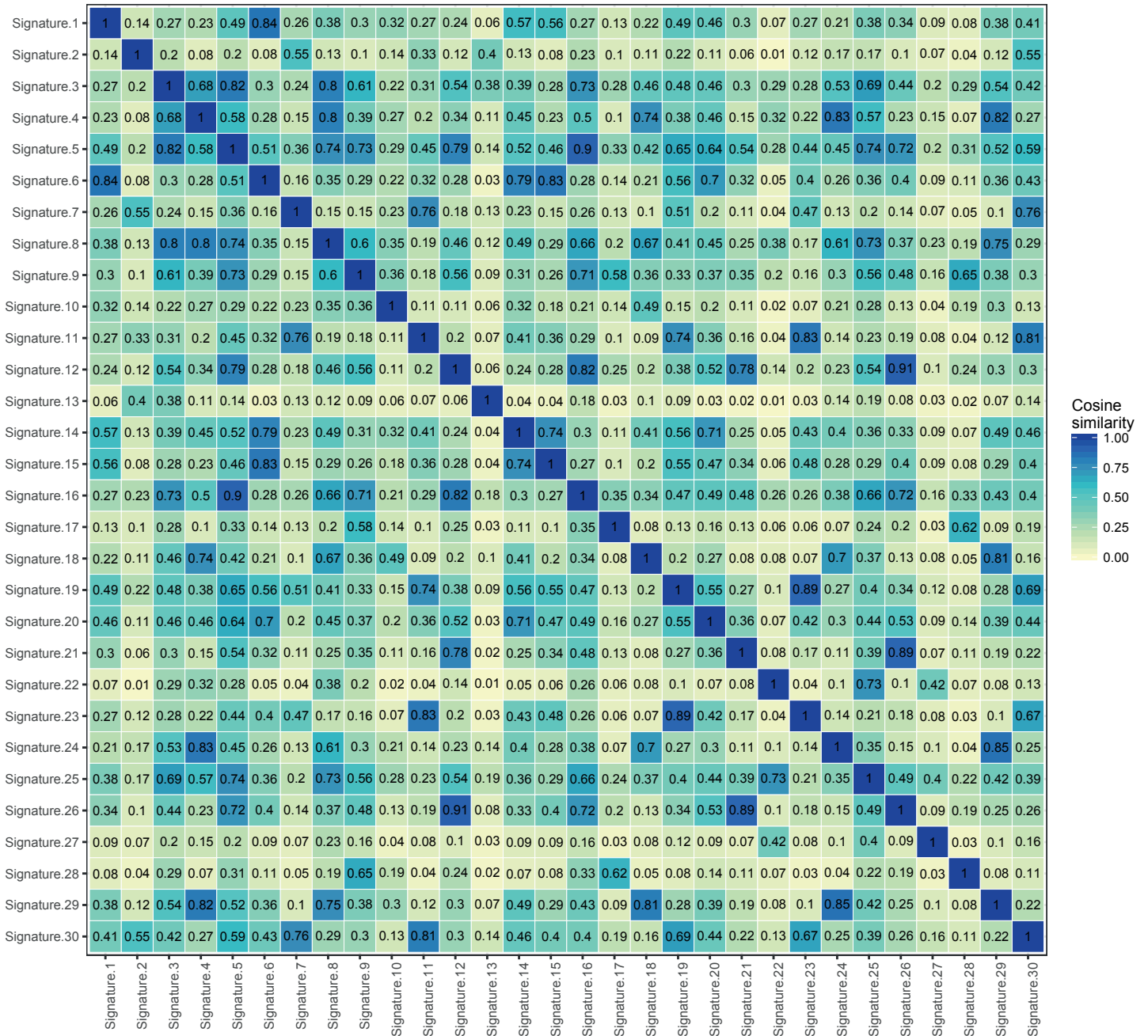


Fig. S3 COSMIC signature similarities. Heatmap with cosine similarities between all 30 COSMIC mutational signatures.