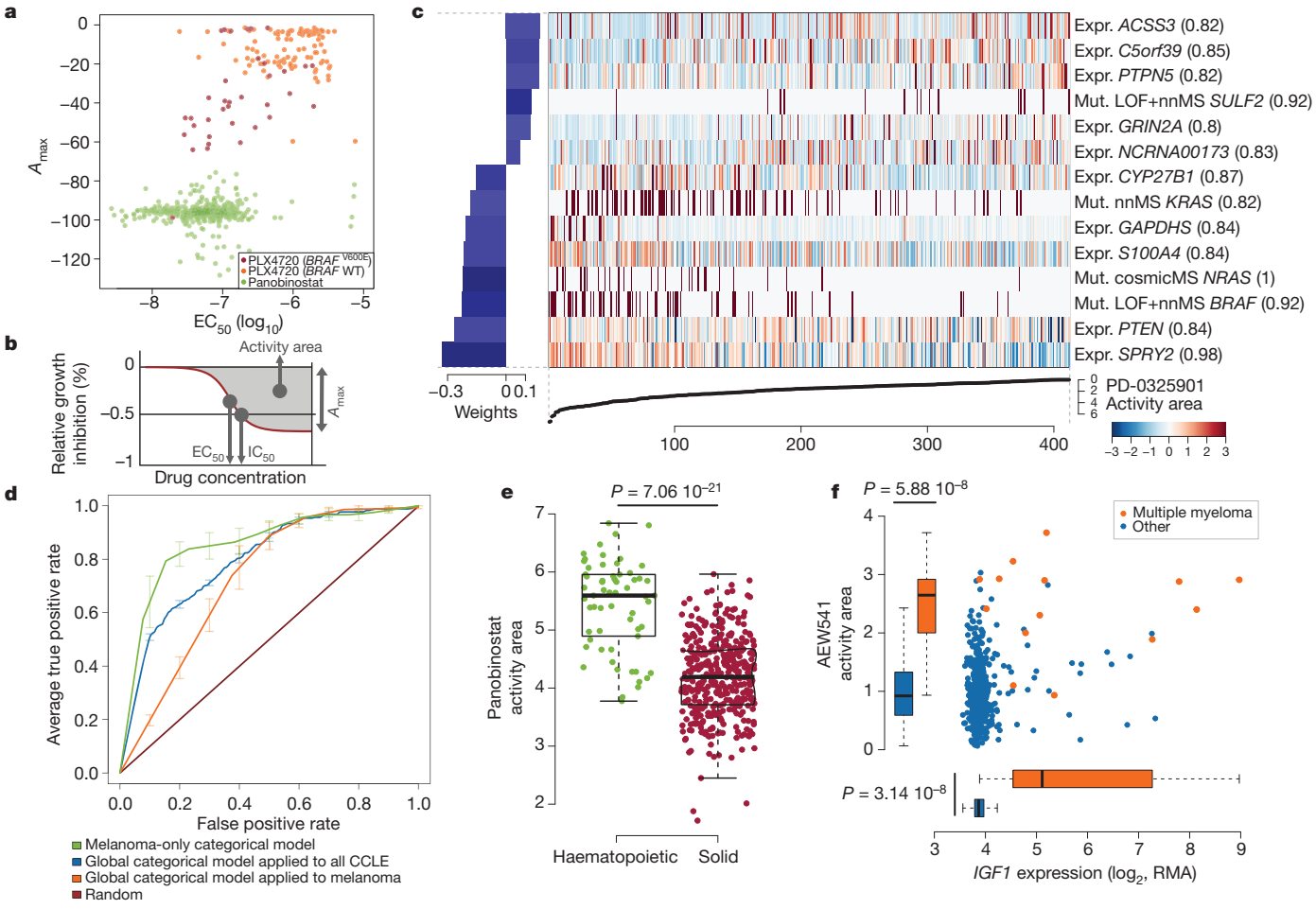

Figure 2 | Predictive modelling of pharmacological sensitivity using CCLE genomic data. **a**, **b**, Drug responses for panobinostat (green) and PLX4720 (orange/purple) represented by the high-concentration effect level (A_{max}) and transitional concentration (EC_{50}) for a sigmoidal fit to the response curve (**b**). **c**, Elastic net regression modelling of genomic features that predict sensitivity to PD-0325901. The bottom curve indicates drug response, measured as the area over the dose–response curve (activity area), for each cell line. The central heat map shows the CCLE features in the model (continuous *z*-score for expression and copy number, dark red for discrete mutation calls), across all cell lines (*x* axis). Bar plot (left): weight of the top predictive features for sensitivity (bottom) or insensitivity (top). Parentheses indicate features present in >80% of models after bootstrapping. LOF, loss of function mutation; nnMS, non-neutral missense mutation (Supplementary Methods). **d**, Specificity and sensitivity (receiver operating characteristic curves) of cross-validated categorical models predicting the response to a MEK inhibitor, PD-0325901 (activity area). Mean true positive rate and standard deviation ($n = 5$) are shown when models are built using all lines (global categorical model, in blue and orange), or within only melanoma lines (green). **e**, Activity area values for panobinostat between cell lines derived from haematopoietic ($n = 61$) and solid tumours ($n = 387$). The middle bar, median; box, inter-quartile range; bars extend to 1.5× the inter-quartile range. **f**, Distribution of activity area values for AEW541 relative to *IGF1* mRNA expression. Orange dots, multiple myeloma cell lines ($n = 14$); blue dots, cell lines from other tumour types ($n = 434$). Box-and-whisker plots show the activity area or mRNA expression distributions relative to each cell line type (line, median; box, inter-quartile range), with bars extending to 1.5× the inter-quartile range.