DITTO Benchmarking for 5 prime UTR variant Receiver Operating Characteristic (ROC) curves Precision Recall (PRC) curves CADD = 0.34CADD = 0.631.0 CSCAPE = 0.53CSCAPE = 0.65ClinPred = 0.40ClinPred = 0.63DANN = 0.62DANN = 0.47DANN Coding = 0.63 $DANN_Coding = 0.50$ --- DGI score = 0.64  $DGI_score = 0.50$ 0.8 0.8  $FATHMM_coding = 0.42$  $FATHMM_coding = 0.63$ Funseq2 = 0.61Funseq2 = 0.37Linsight = 0.52Linsight = 0.65LRT = 0.49LRT = 0.63Loftool = 0.59Loftool = 0.70Rate 9.0 0.6 MetaSVM = 0.63MetaSVM = 0.43MetaLR = 0.63MetaLR = 0.43MutPred = 0.63MutPred = 0.50 $MutPred_indel = 0.50$  $MutPred_indel = 0.63$ True 0.4 — Mutation\_Assessor = 0.63  $Mutation_Assessor = 0.50$ 0.4  $Mutation_{Taster} = 0.50$ Mutation Taster = 0.63--- Provean = 0.64Provean = 0.50PHDSNPG = 0.48PHDSNPG = 0.62—— Revel = 0.63—— Revel = 0.50--- SIFT = 0.50 --- SIFT = 0.64 0.2 VEST = 0.50---- VEST = 0.63 --- dbSCSNV\_ADA = 0.49 --- dbSCSNV\_ADA = 0.63 --- dbSCSNV\_RF = 0.50 --- dbSCSNV\_RF = 0.63 --- varity\_r = 0.63 - varity\_r = 0.42 — varity\_er = 0.63 --- varity\_er = 0.42 0.0 DITTO = 0.98DITTO = 0.980.0 0.2 0.0 0.2 8.0 0.4 0.6 8.0 1.0 0.4 0.6 1.0 False Positive Rate Recall