

**Additional Table 3.** Prediction of newly annotated genes. Average AUROC and AUPRC across 2444 HPO terms and average  $F_{max}$ , Precision and Recall of HTD and TPR ensemble variants across the newly annotated 608 genes. Best results for each metric are highlighted in bold.

Meas. Methods	AUROC	AUPRC	$F_{max}$	Precision	Recall
<i>HTD</i>	0.6464	0.1207	0.3794	0.3581	0.4033
<i>TPR-T</i>	0.6466	0.1209	0.3795	0.3580	0.4036
<i>TPR-D</i>	0.6465	0.1211	0.3794	<b>0.3584</b>	0.4030
<i>TPR-TF</i>	0.6498	0.1224	0.3812	0.3560	0.4101
<i>TPR-W</i>	<b>0.6512</b>	<b>0.1237</b>	<b>0.3826</b>	0.3512	<b>0.4202</b>