

True

predicted

G	131	1		1	
H	1	35	3	4	
P		1	40		
S		2	4	21	1
V	2	3		2	27
	G	H	P	S	V

G - 134

H - 42

P - 47

S - 26

V - 28

Glutamatergic

$$TP = 131$$

$$FN = 1 + 1 = 2$$

$$FP = 1 + 2 = 3$$

$$TN = 35 + 3 + 4 + 1 + 40 + 2 + 4 + 1 + 3 + 21 + 27 = 141$$

$$\text{precision} = \frac{TP}{TP + FP} = \frac{131}{131 + 3} = 97.761\% \quad \underline{\underline{0.97761}}$$

$$\text{Recall} = \frac{TP}{TP + FN} = \frac{131}{131 + 2} = 98.496\% \quad \underline{\underline{0.98496}}$$

$$F1 = 2 \frac{\text{precision} \cdot \text{recall}}{\text{precision} + \text{recall}} = \frac{2 \cdot 0.97761 \cdot 0.98496}{0.97761 + 0.98496} = \underline{\underline{0.9812}}$$

$$\underline{\underline{0.9812}}$$

2.679

0.796

3.525

Htr3a

$$TP = 35$$

$$FN = 1 + 3 + 4 = 8$$

$$FP = 1 + 1 + 2 + 3 = 7$$

$$TN = 131 + 1 + 40 + 4 + 21 + 1 + 2 + 27 = 227$$

$$\text{precision} = \frac{35}{35+7} = \underline{\underline{0.8333}}$$

$$\text{recall} = \frac{35}{35+8} = \underline{\underline{0.8139}}$$

$$F1 = 2 \times \frac{0.8333 \times 0.8139}{0.8333 + 0.8139} = \cancel{0.8234} \quad \underline{\underline{0.8234}}$$

pvalb

$$TP = 40$$

$$FN = 1$$

$$FP = 3 + 4 = 7$$

$$TN = 131 + 1 + 1 + 1 + 35 + 4 + 2 + 21 + 1 + 2 + 3 + 27 = 229$$

$$\text{precision} = \frac{40}{40+7} = \underline{\underline{0.851}}$$

$$\text{recall} = \frac{40}{40+1} = \underline{\underline{0.975}}$$

$$F1 = 2 \times \frac{0.851 \times 0.975}{0.851 + 0.975} = \underline{\underline{0.9087}}$$

Sst

$$Tp = 21$$

$$FN = 2 + 4 + 1 = 7$$

$$Fp = 1 + 4 = 5$$

$$TN = 131 + 1 + 1 + 35 + 3 + 1 + 40 + 2 + 3 + 27 = 244$$

$$\text{precision} = \frac{21}{21+5} = \underline{\underline{0.8076}}$$

$$\text{recall} = \frac{21}{21+7} = \underline{\underline{0.75}}$$

$$F1 = 2 \times \frac{0.8076 \times 0.75}{0.8076 + 0.75} = \underline{\underline{0.7777}}$$

Vip

$$Tp = 27$$

$$FN = 2 + 3 = 5$$

$$Fp = 1$$

$$TN = 131 + 1 + 1 + 1 + 35 + 3 + 4 + 1 + 40 + 2 + 4 + 21 = 244$$

$$\text{precision} = \frac{27}{27+1} = \underline{\underline{0.964}}$$

$$\text{recall} = \frac{27}{27+5} = \underline{\underline{0.843}}$$

$$F1 = 2 \times \frac{0.964 \times 0.843}{0.964 + 0.843} = \underline{\underline{0.8994}}$$

Class	TP	FP	FN	TN	prec	reca	F1
G	131	3	2	141	0.977	0.984	0.981
H	35	7	8	227	0.833	0.813	0.823
P	40	7	1	229	0.851	0.975	0.908
S	21	5	7	244	0.807	0.75	0.777
V	27	1	5	244	0.964	0.843	0.899
	<u>254</u>	<u>23</u>	<u>23</u>	<u>1085</u>	<u>4.432</u>	<u>4.365</u>	<u>4.388</u>

Micro

$$\text{precision} = \frac{131+35+40+21+27}{131+35+40+21+27+23} = 0.916$$

$$\text{recall} = \frac{254}{254+23} = 0.916$$

$$F1 = 2 \times \frac{0.916^2}{2 \times 0.916} = 0.916$$

Macro

$$\text{precision} = \frac{4.432}{5} = 0.8864$$

$$\text{recall} = \frac{4.365}{5} = 0.873$$

$$F1 = \frac{4.388}{5} = 0.8776$$