

The tables below show the performance of our XGBoost classifier in different scenarios. The mean scores were computed based on one hundred iterations in each comparison.

Table 1. Performance metrics of XGBoost classifier across all cells (unannotated)

Comparison	Accuracy Mean (SD)	Sensitivity Mean (SD)	Specificity Mean (SD)
T1D-CTL	99.10 (0.04)	99.71 (0.04)	96.94 (0.20)
T1D-AAb+	99.15 (0.07)	99.40 (0.08)	98.88 (0.12)
AAb+-CTL	96.34 (0.23)	98.69 (0.13)	88.44 (0.87)

SD- Standard Deviation.

Table 2. Performance metrics of XGBoost T1D-CTL classifier across different cell types

Cell Types	Accuracy Mean (SD)	Sensitivity Mean (SD)	Specificity Mean (SD)
Acinar	99.20 (0.10)	99.69 (0.08)	98.08 (0.25)
Alpha	99.13 (0.09)	99.71 (0.06)	96.93 (0.36)
Beta	99.60 (0.07)	99.98 (0.02)	85.31 (2.32)
Delta	98.08 (0.39)	99.42 (0.27)	92.08 (1.72)
Ductal	98.86 (0.17)	99.71 (0.12)	97.79 (0.37)
Immune	94.18 (1.21)	97.67 (1.00)	85.94 (3.48)

SD- Standard Deviation.

Table 3. Performance metrics of XGBoost T1D-AAb+ classifier across different cell types

Cell Types	Accuracy Mean (SD)	Sensitivity Mean (SD)	Specificity Mean (SD)
Acinar	99.32 (0.11)	98.95 (0.25)	99.53 (0.13)
Alpha	99.38 (0.11)	99.67 (0.11)	99.07 (0.21)
Beta	98.90 (0.21)	99.80 (0.10)	88.11 (2.37)
Delta	97.70 (0.71)	98.31 (1.01)	97.19 (1.15)
Ductal	99.25 (0.18)	99.12 (1.32)	99.34 (0.22)
Immune	91.97 (1.59)	88.92 (3.06)	94.29 (2.00)

SD- Standard Deviation.

Table 4. Performance metrics of XGBoost AAb+-CTL classifier across different cell types

Cell Types	Accuracy Mean (SD)	Sensitivity Mean (SD)	Specificity Mean (SD)
Acinar	97.75 (0.20)	99.34 (0.22)	91.59 (0.69)
Alpha	97.15 (0.17)	99.19 (0.14)	89.86 (0.73)
Beta	97.20 (0.18)	98.79 (0.18)	92.13 (0.55)
Delta	91.59 (0.86)	98.76 (0.44)	54.97 (4.32)
Ductal	97.03 (0.29)	99.02 (0.33)	93.00 (0.74)
Immune	81.23 (1.84)	95.76 (1.86)	36.48 (6.07)

SD- Standard Deviation.