

**Table S14: Performance of DL-models on validation dataset developed using composition-based features for gram-positive ABPs**

DL Model	ANN			CNN			RNN			LSTM		
Feature Type	AUC	AUPRC	MCC	AUC	AUPRC	MCC	AUC	AUPRC	MCC	AUC	AUPRC	MCC
AAC	0.84	0.86	0.53	0.87	0.88	0.57	0.90	0.91	0.69	0.89	0.90	0.64
DPC	0.87	0.88	0.62	0.88	0.88	0.60	0.88	0.89	0.64	0.90	0.88	0.62
ATC	0.64	0.65	0.29	0.65	0.66	0.09	0.61	0.65	0.14	0.59	0.66	0.16
BTC	0.67	0.60	0.04	0.66	0.60	0.04	0.68	0.60	0.17	0.37	0.42	-0.06
CTC	0.85	0.86	0.59	0.86	0.86	0.61	0.85	0.86	0.59	0.85	0.86	0.58
PCP	<b>0.90</b>	0.91	0.66	0.85	0.88	0.54	<b>0.92</b>	0.92	0.69	0.79	0.78	0.44
RRI	0.83	0.85	0.53	0.85	0.84	0.54	0.86	0.84	0.53	0.82	0.83	0.50
PRI	0.71	0.74	0.33	0.82	0.83	0.46	0.82	0.80	0.48	0.73	0.75	0.36
DDR	0.81	0.79	0.48	0.82	0.80	0.40	0.84	0.83	0.55	0.71	0.71	0.32
SEP	0.72	0.72	0.41	0.72	0.72	0.25	0.72	0.72	0.23	0.72	0.72	0.22
SER	0.87	0.88	0.58	0.88	0.88	0.58	0.90	0.90	0.72	0.85	0.86	0.50
SPC	0.81	0.85	0.47	0.84	0.85	0.50	0.87	0.89	0.62	0.78	0.79	0.43
PAAC	0.86	0.84	0.60	0.89	0.90	0.58	0.87	0.88	0.63	0.89	0.84	0.63
APAAC	0.87	0.86	0.58	0.88	0.87	0.59	0.89	0.90	0.61	0.88	0.89	0.66
QSO	0.87	0.87	0.62	<b>0.91</b>	0.92	0.67	0.88	0.89	0.58	<b>0.90</b>	0.90	0.66

# **AUC**: Area Under the Receiver Operating Characteristic curve, **AUPRC**:Area Under the Precision-Recall Curve, **MCC**: Matthews Correlation Coefficient, **AAC**: Amino acid

composition, **APAAC**: Amphiphilic pseudo amino acid composition, **DDR**: Distance distribution of residue, **DPC**: Di-peptide composition, **QSO**: Quasi-sequence order, **PCP**: Physico-chemical properties composition, **PAAC**: Pseudo amino acid composition, **RRI**: Residue repeat Information, **SPC**: Shannon entropy of physicochemical properties, **ATC**: Atomic composition , **BTC**: Bond type composition, **CTC**: Conjoint triad descriptors, **PRI**: Property repeats index, **SEP**: Shannon entropy of a protein, **SER**: Shannon entropy of a residue, **ANN**: Artificial neural network, **CNN**: Convolution neural network, **RNN**: Recurrent neural network, **LSTM**: Long short-term memory