Efficient multi-task chemogenomics for drug specificity prediction
S2 appendix: Definition of the Kronecker product of two matrices A and B

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$$A \otimes B = \begin{pmatrix} a_{11}b_{11} & a_{11}b_{12} & \cdots & a_{11}b_{1q} & \cdots & \cdots & a_{1m}b_{11} & a_{1m}b_{12} & \cdots & a_{1m}b_{1q} \\ a_{11}b_{21} & a_{11}b_{22} & \cdots & a_{11}b_{2q} & \cdots & \cdots & a_{1m}b_{21} & a_{1m}b_{22} & \cdots & a_{1m}b_{2q} \\ \vdots & \vdots & \ddots & \vdots & & & \vdots & \vdots & \ddots & \vdots \\ a_{11}b_{p1} & a_{11}b_{p2} & \cdots & a_{11}b_{pq} & \cdots & \cdots & a_{1m}b_{p1} & a_{1m}b_{p2} & \cdots & a_{1m}b_{pq} \\ \vdots & \vdots & & \vdots & \ddots & & \vdots & \vdots & & \vdots \\ \vdots & \vdots & & \vdots & & \ddots & \vdots & \vdots & & \vdots \\ a_{n1}b_{11} & a_{n1}b_{12} & \cdots & a_{n1}b_{1q} & \cdots & \cdots & a_{nm}b_{11} & a_{nm}b_{12} & \cdots & a_{nm}b_{1q} \\ a_{n1}b_{21} & a_{n1}b_{22} & \cdots & a_{n1}b_{2q} & \cdots & \cdots & a_{nm}b_{21} & a_{nm}b_{22} & \cdots & a_{nm}b_{2q} \\ \vdots & \vdots & \ddots & \vdots & & & \vdots & \vdots & \ddots & \vdots \\ a_{n1}b_{p1} & a_{n1}b_{p2} & \cdots & a_{n1}b_{pq} & \cdots & \cdots & a_{nm}b_{p1} & a_{nm}b_{p2} & \cdots & a_{nm}b_{pq} \end{pmatrix}.$$

Therefore, if matrix A is of size $n.m$ and matrix B is of size $p.q$, the Kronecker product of A and B is a matrix of size $n.m.p.q$