

scRNA-seq Count matrix

a

scRNA	cell ₁	cell ₂	...	cell _n
gene ₁	3	0	...	0
gene ₂	0	2	...	1
⋮	⋮	⋮	⋱	⋮
gene _r	0	4	3	0

scATAC-seq Count matrix

b

scATAC	cell ₁	cell ₂	...	cell _n
peak ₁	0	1	...	2
peak ₂	2	0	...	0
⋮	⋮	⋮	⋱	⋮
peak _s	0	0	...	0

scADT Count matrix

c

scADT	cell ₁	cell ₂	...	cell _n
protein ₁	101	0	...	5
protein ₂	3	212	...	0
⋮	⋮	⋮	⋱	⋮
protein _t	321	0	...	17

