

Each main or supplementary figure is associated with a dedicated folder under *Recovery\_code/*, which contains the exact commands required to reproduce the results.

**Table 1. Summary of datasets, recovery schemes, and corresponding experiments**

Dataset	Recovery scheme	Experiment
Exp-1		
Exp-2		
Exp-3	Bit-wise probability generation	Figure 3
Exp-4		
Sim-1		
Sim-2	Type I+II Reads-FBA/	
Sim-3	Bit-wise probability generation	Figure 4
Sim-4		
Sim-9	Type I+II+III Reads-FBA/	
Exp-10	Bit-wise probability generation	Figure 5
Exp-5		
Exp-6		
Exp-7	Bit-wise probability generation	Figure S23
Exp-8		
Exp-13	Bit-wise probability generation	Figure S25
Sim-1		
Sim-2	Type I+II Reads-FBA/	
Sim-3	Bit-wise probability generation	Figure S33
Sim-4		
Sim-5		
Sim-6		
Sim-7	Type I+II Reads-FBA/	
Sim-8	Bit-wise probability generation	Figure S34
Sim-9		
Sim-10		
Sim-1		Figure S41
Sim-2	Type I+II+III Reads-FBA/	Figure S42
Sim-3	Bit-wise probability generation	Figure S43
Sim-4		Figure S44
Sim-6		Figure S45
Sim-7	Type I+II+III Reads-FBA/	Figure S46
Sim-8	Bit-wise probability generation	Figure S47
Sim-9		Figure S48
Sim-5	Type I+II+III Reads-FBA/	Figure S49
Sim-10	Bit-wise probability generation	Figure S50
Exp-9		Figure S53
Exp-10	Type I+II+III Reads-FBA/	Figure S55
Exp-11	Bit-wise probability generation	Figure S57
Exp-12		Figure S59