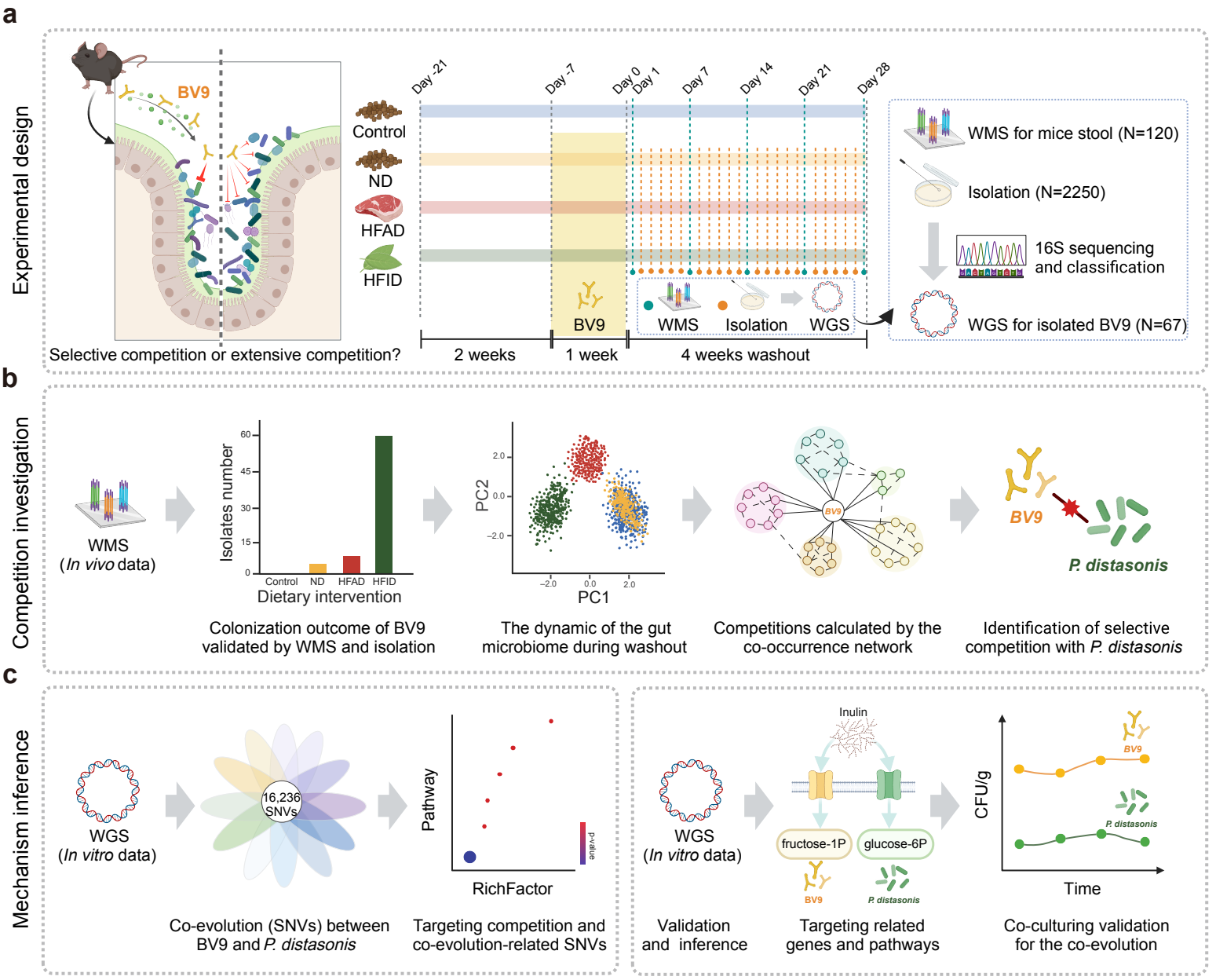
a
Experimental design
BV9
Selective competition or extensive competition?
Control
ND
HFAD
HFID
Day -21
Day -7
Day 0
Day 1
Day 7
Day 14
Day 21
Day 28
BV9
WMS
Isolation
WGS
2 weeks
1 week
4 weeks washout
WMS for mice stool (N=120)
Isolation (N=2250)
16S sequencing and classification
WGS for isolated BV9 (N=67)
b
Competition investigation
WMS (In vivo data)
Isolates number
Control
ND
HFAD
HFID
Dietary intervention
Colonization outcome of BV9 validated by WMS and isolation
PC2
PC1
The dynamic of the gut microbiome during washout
BV9
Competitions calculated by the co-occurrence network
BV9
P. distasonis
Identification of selective competition with P. distasonis
c
Mechanism inference
WGS (In vitro data)
16,236 SNVs
Co-evolution (SNVs) between BV9 and P. distasonis
Pathway
RichFactor
p-value
Targeting competition and co-evolution-related SNVs
WGS (In vitro data)
Validation and inference
Inulin
fructose-1P
glucose-6P
BV9
P. distasonis
Targeting related genes and pathways
CFU/g
Time
BV9
P. distasonis
Co-culturing validation for the co-evolution