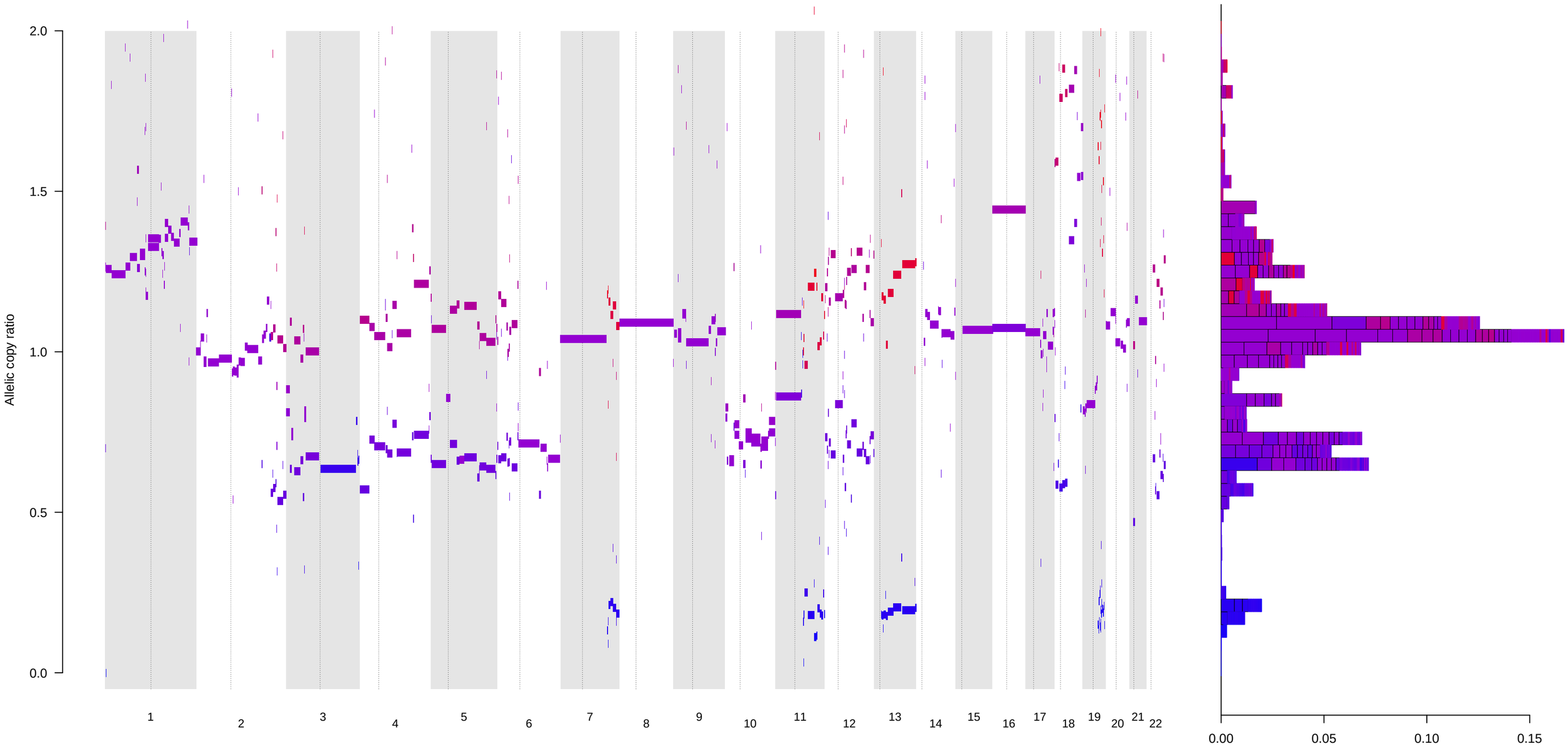
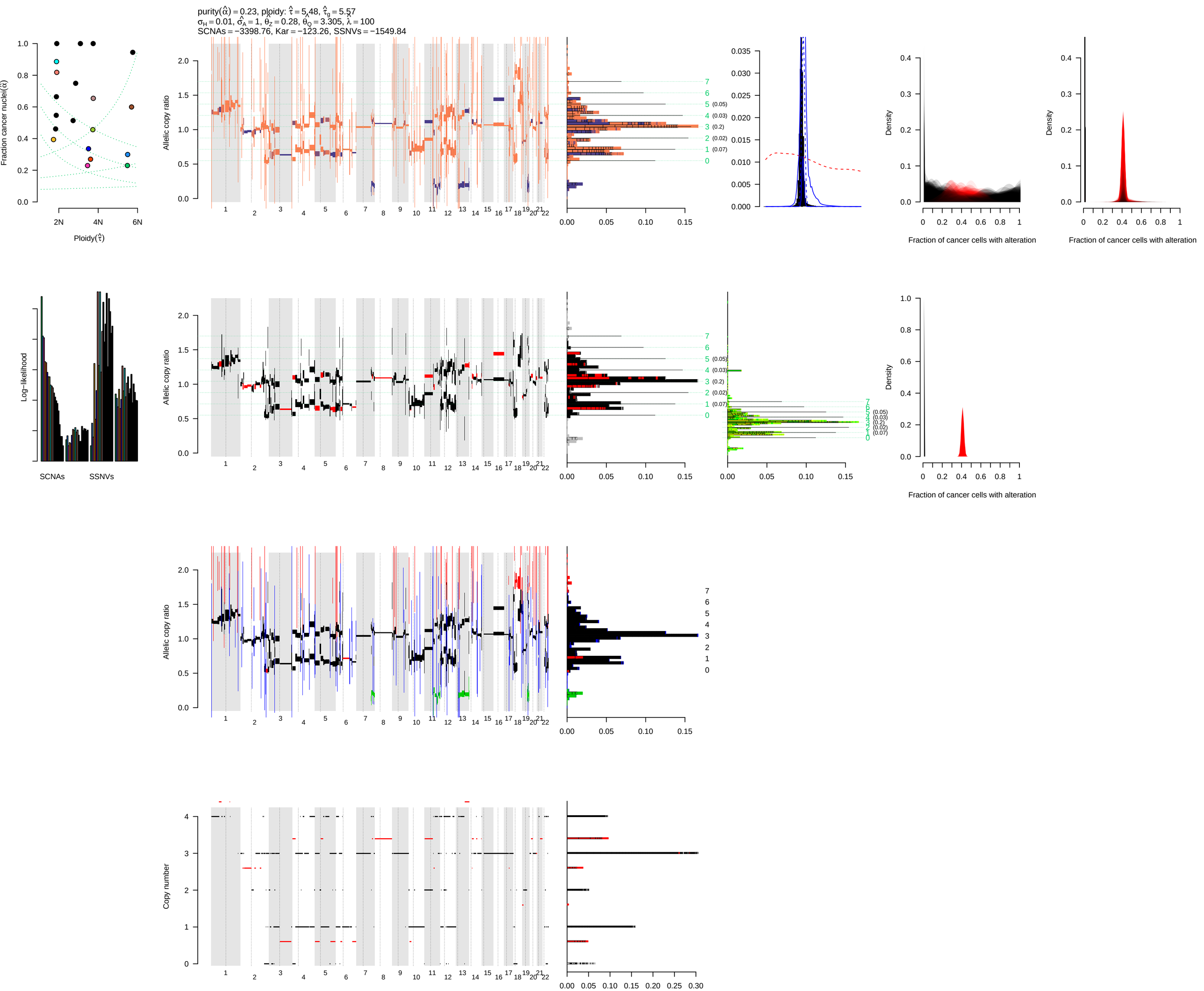
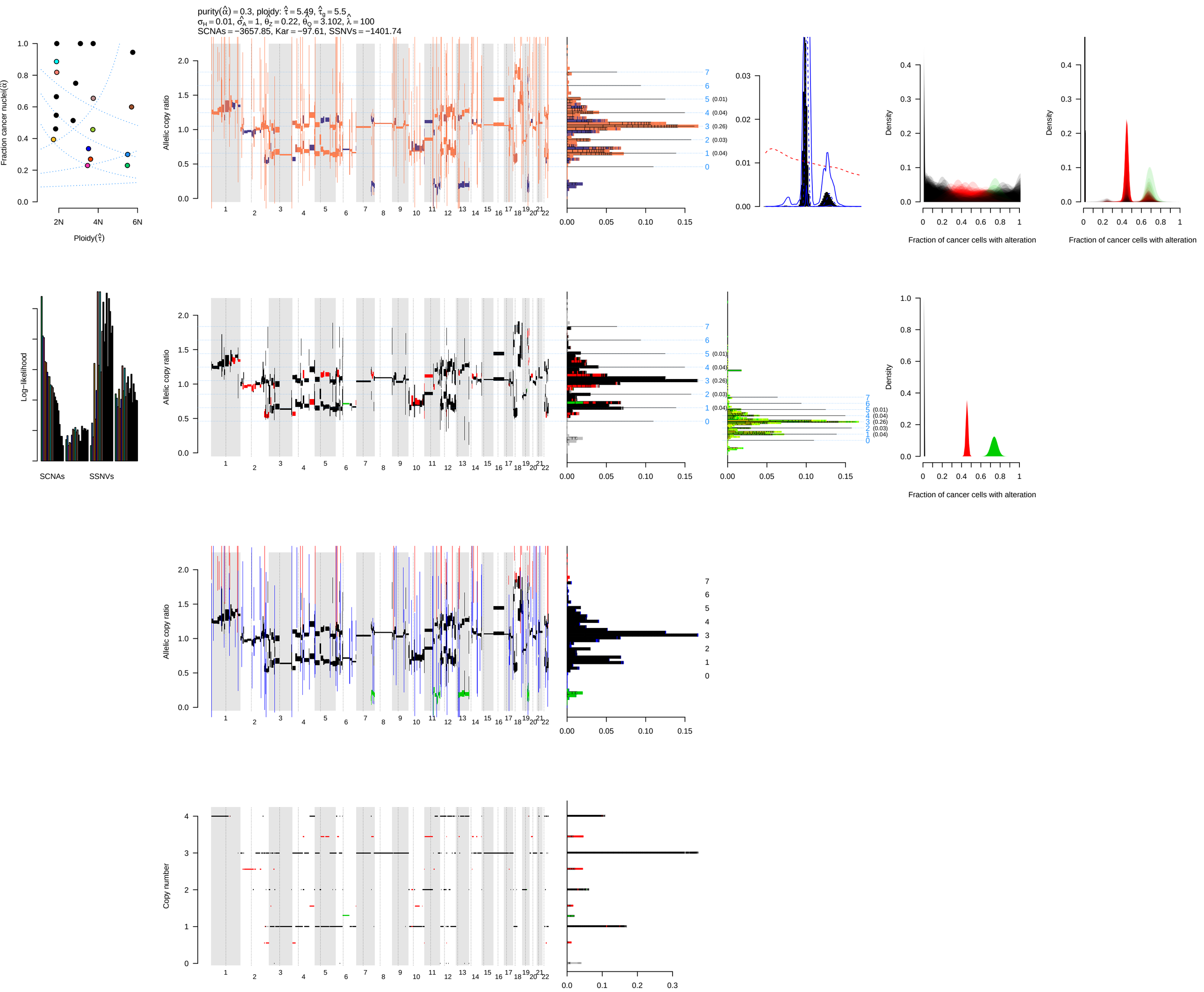
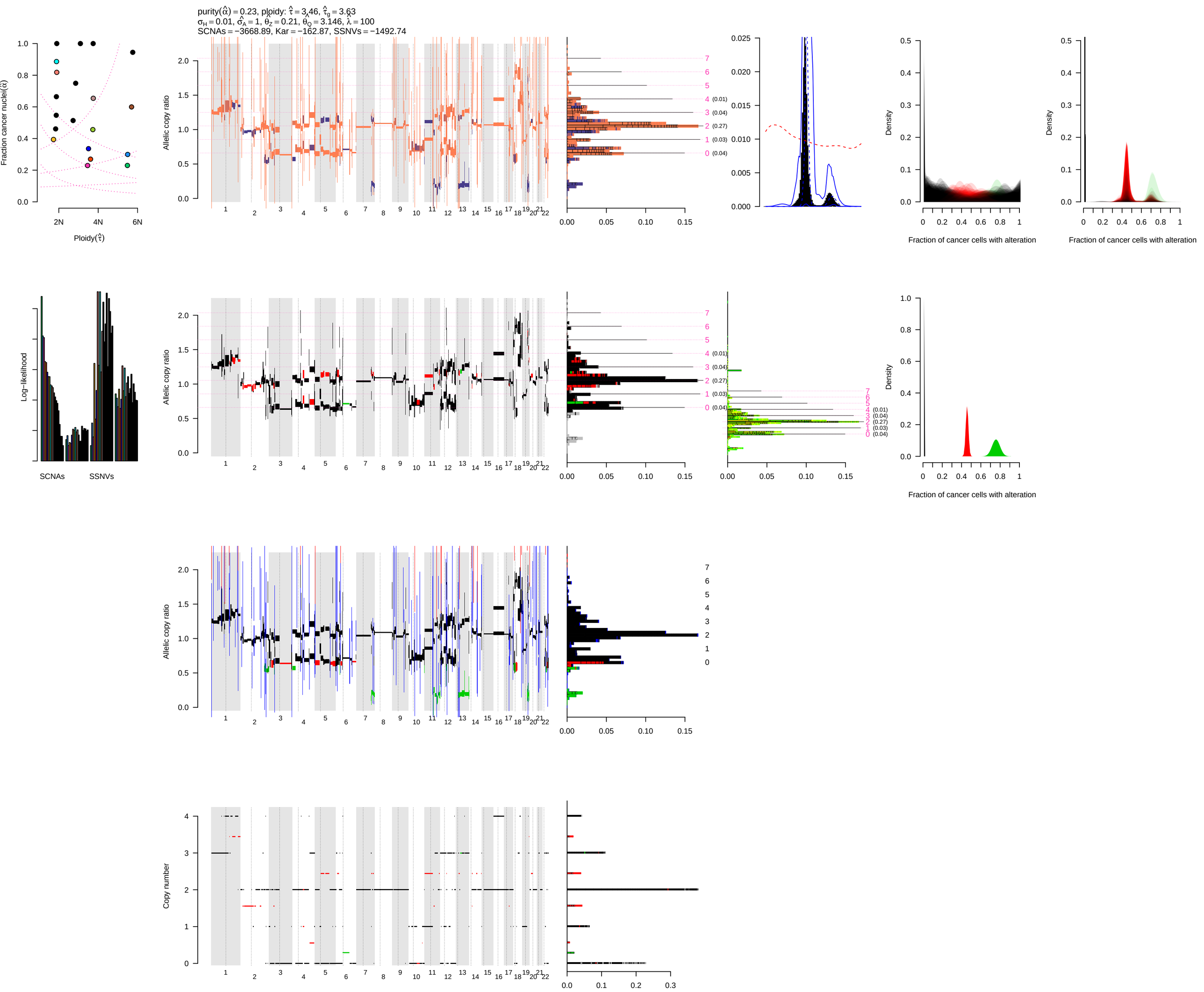
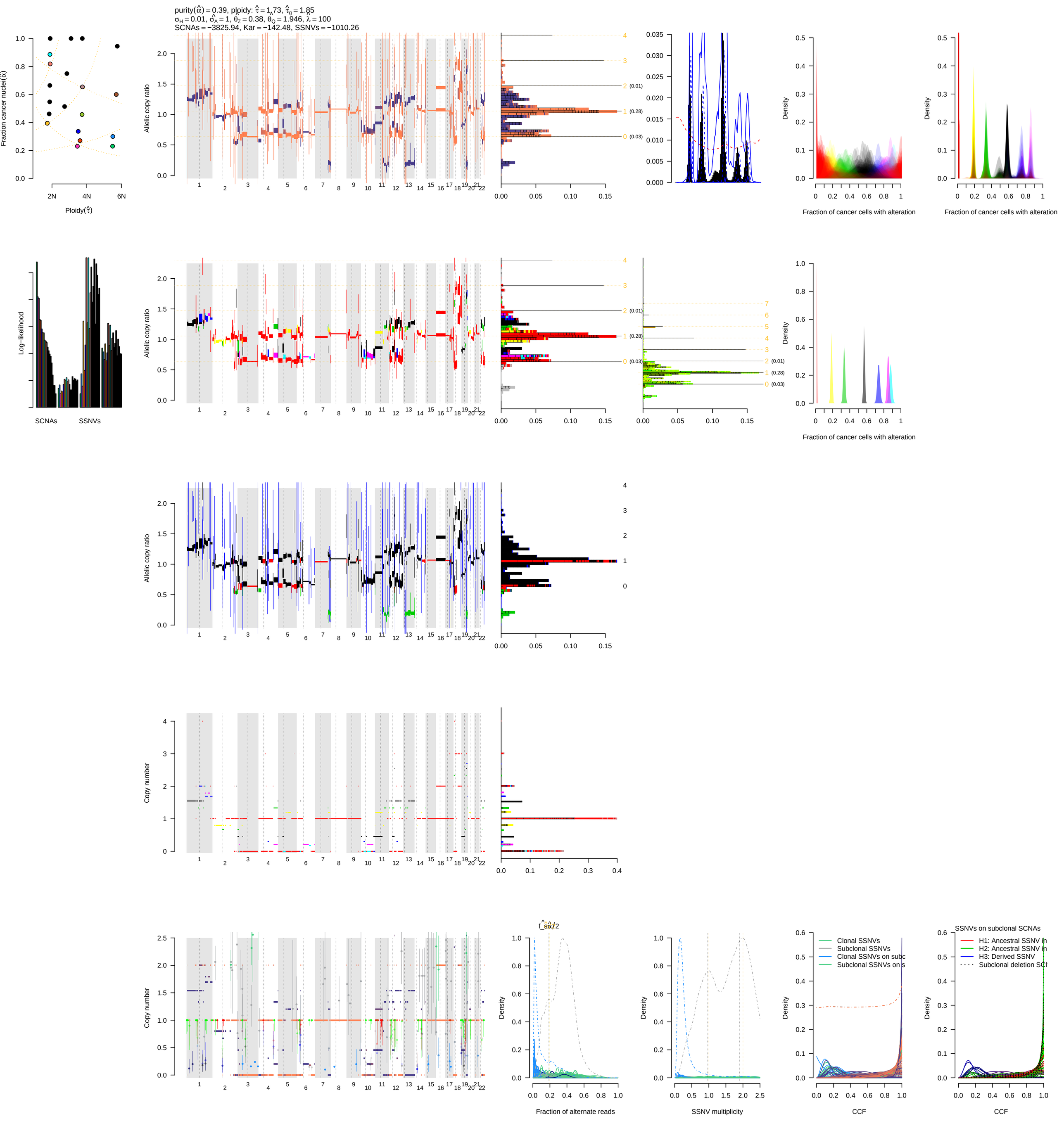
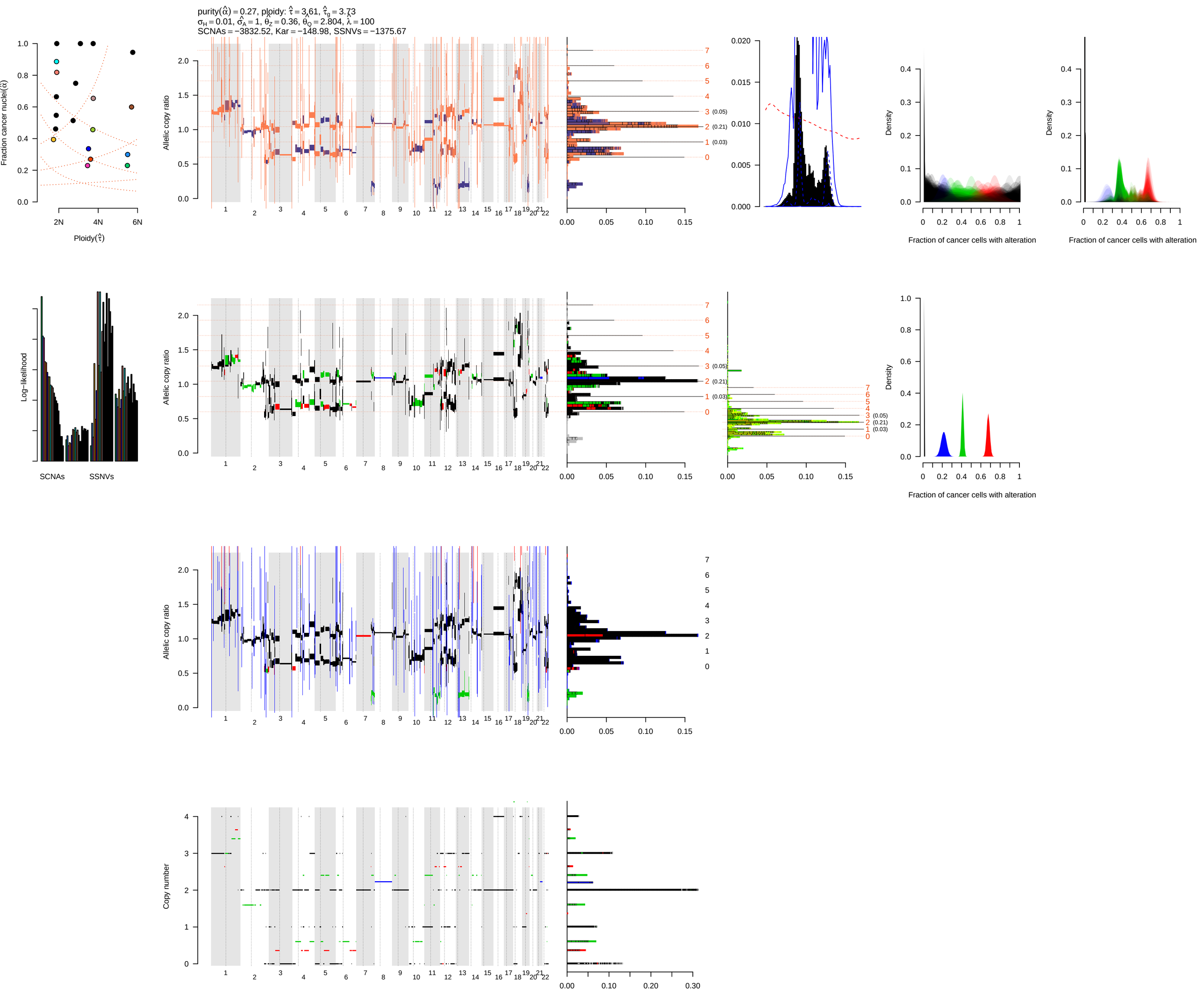

Allelic copy ratio
2.0
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
0.00
0.05
0.10
0.15

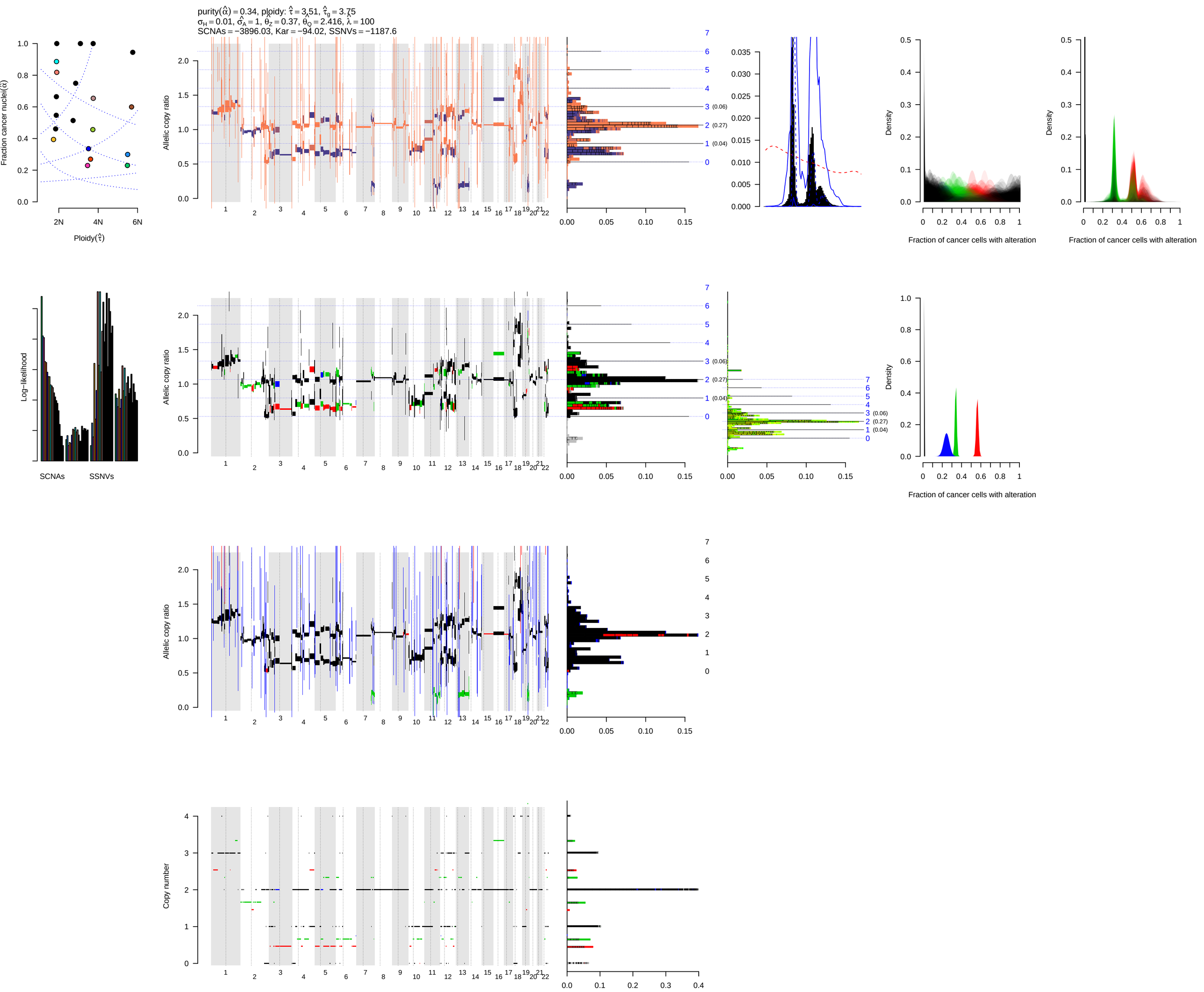

purity($\hat{\alpha}$) = 0.23, ploidy: $\hat{\tau}$ = 5.48, $\hat{\tau}_g$ = 5.57
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.28, θ_Q = 3.305, $\hat{\lambda}$ = 100
SCNAs = −3398.76, Kar = −123.26, SSNVs = −1549.84
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_sol2
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

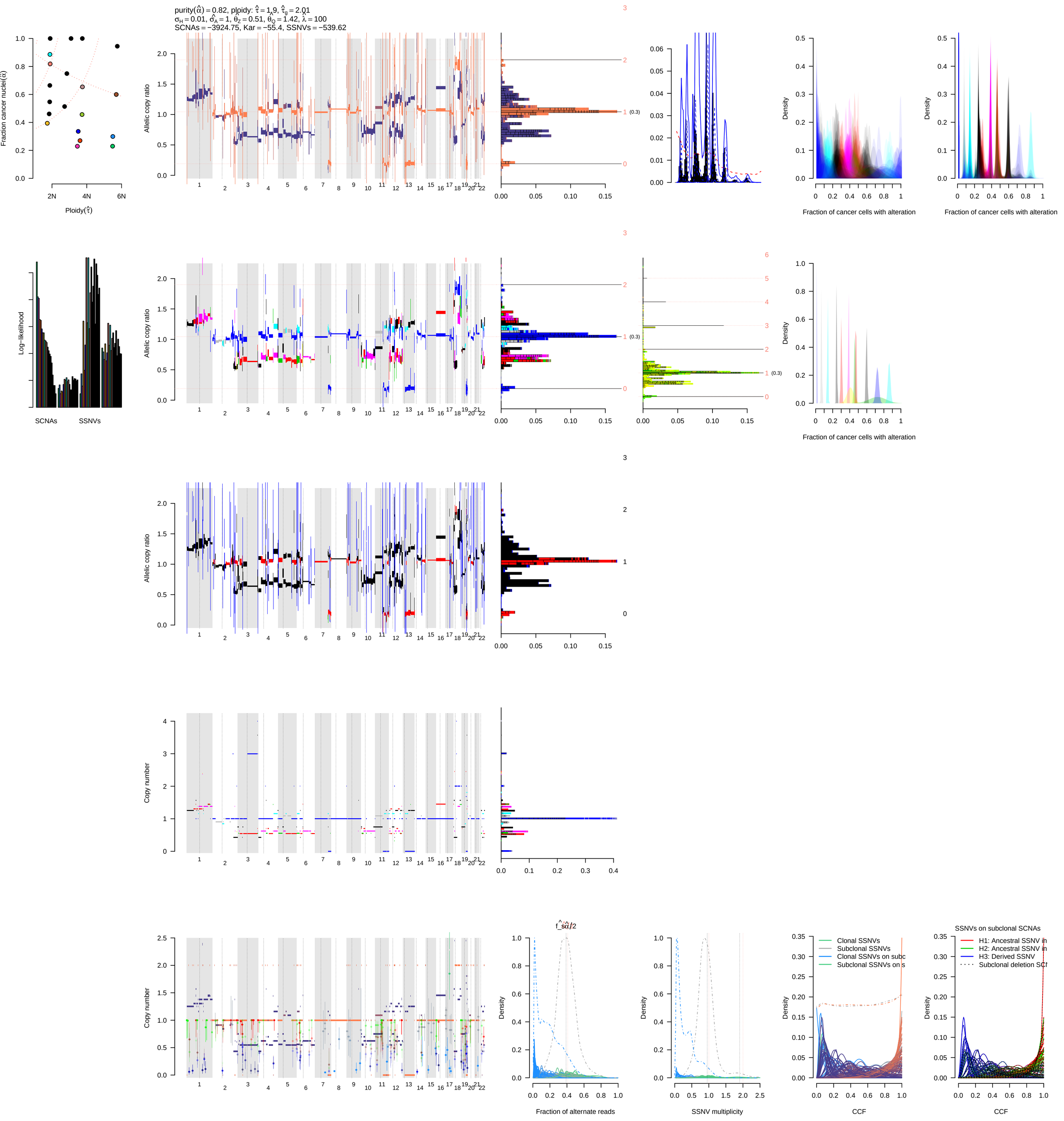

purity($\hat{\alpha}$) = 0.3, ploidy: $\hat{\tau}$ = 5.49, $\hat{\tau}_g$ = 5.5
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.22, θ_Q = 3.102, $\hat{\lambda}$ = 100
SCNAs = −3657.85, Kar = −97.61, SSNVs = −1401.74
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_scr2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

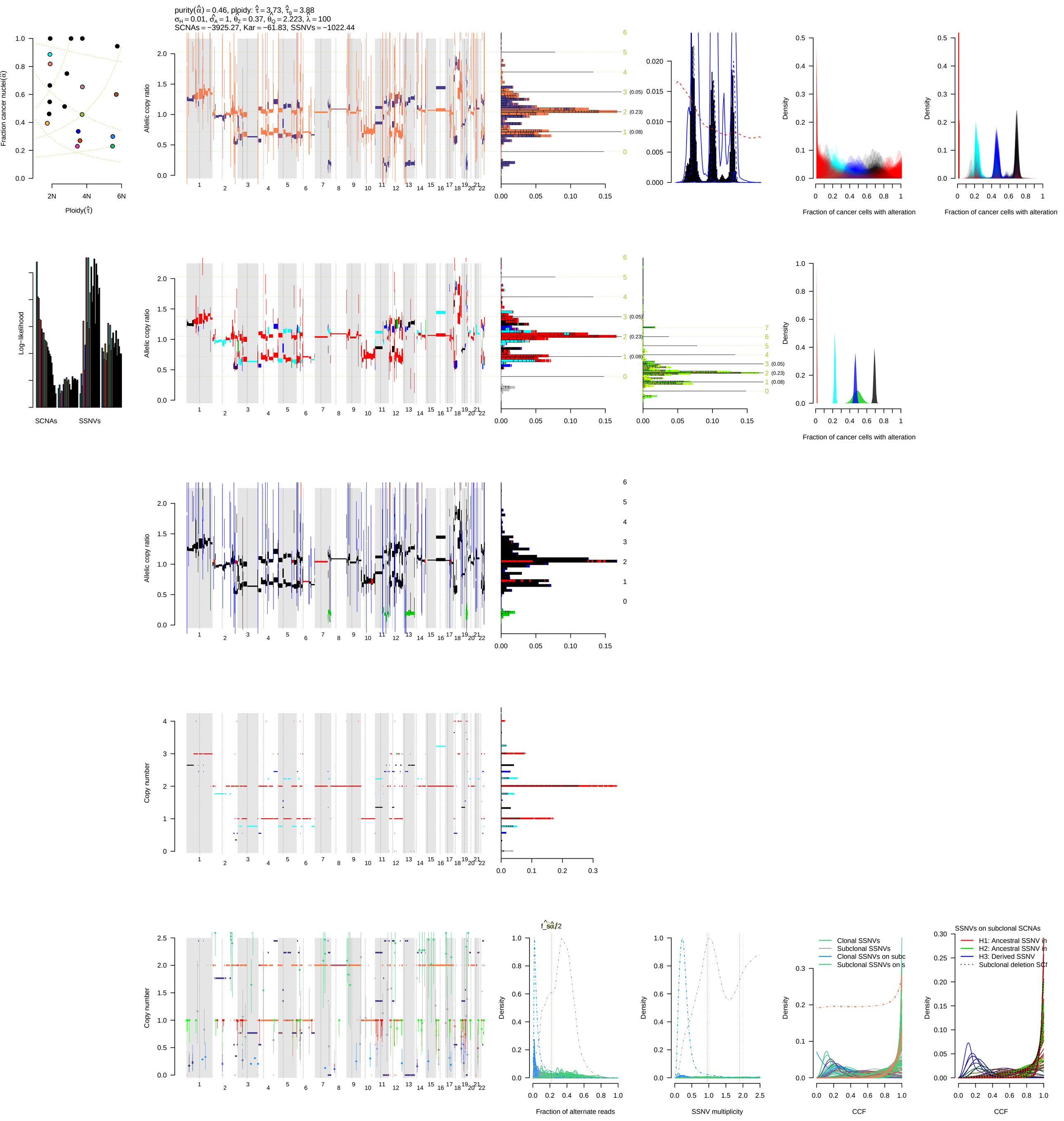

purity($\hat{\alpha}$) = 0.23, ploidy: $\hat{\tau}$ = 3.46, $\hat{\tau}_g$ = 3.63
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.21, θ_Q = 3.146, $\hat{\lambda}$ = 100
SCNAs = −3668.89, Kar = −162.87, SSNVs = −1492.74
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_sol/2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

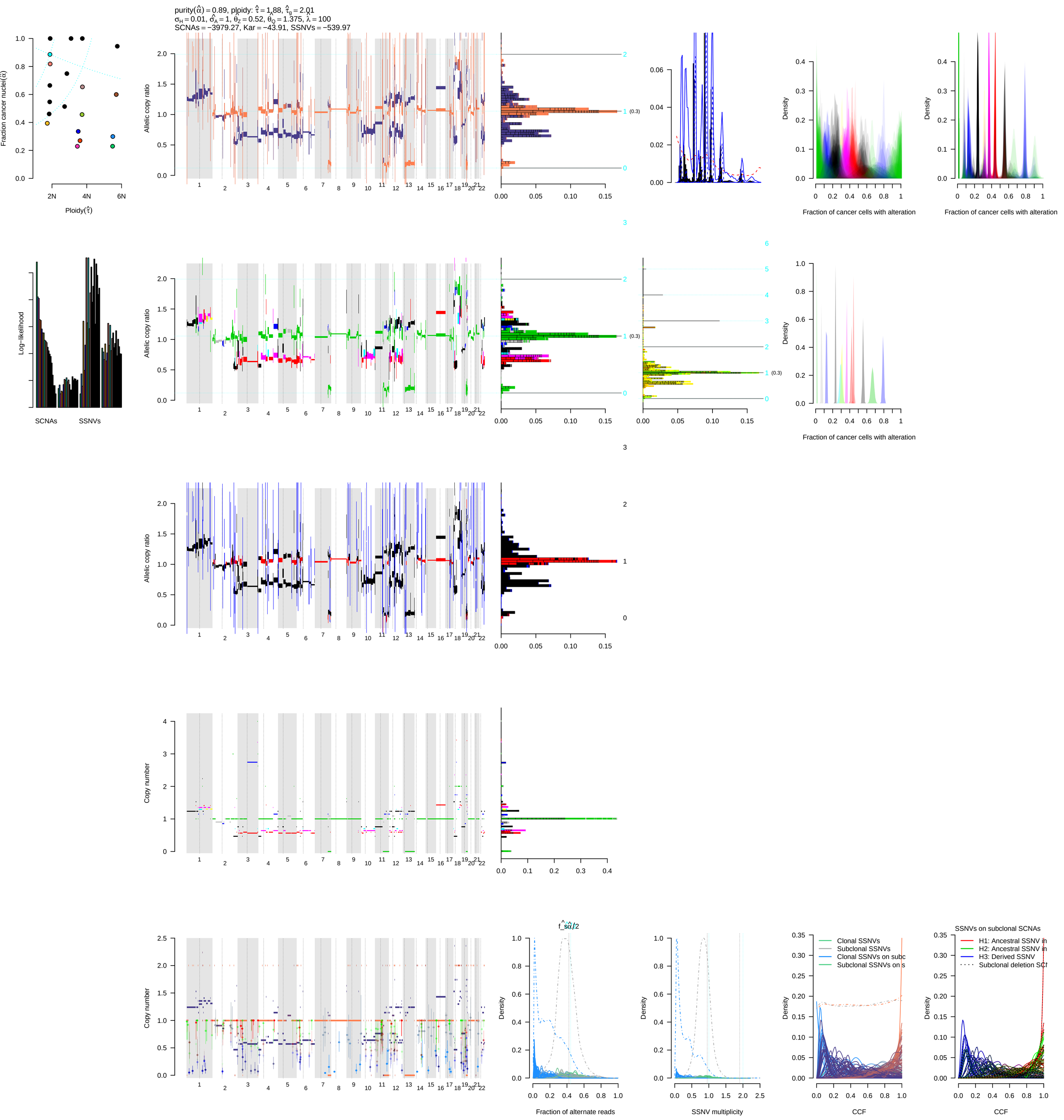

purity($\hat{\alpha}$) = 0.39, ploidy: $\hat{\tau}$ = 1.73, $\hat{\tau}_g$ = 1.85
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.38, θ_Q = 1.946, $\hat{\lambda}$ = 100
SCNAs = −3825.94, Kar = −142.48, SSNVs = −1010.26
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_s^α/2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

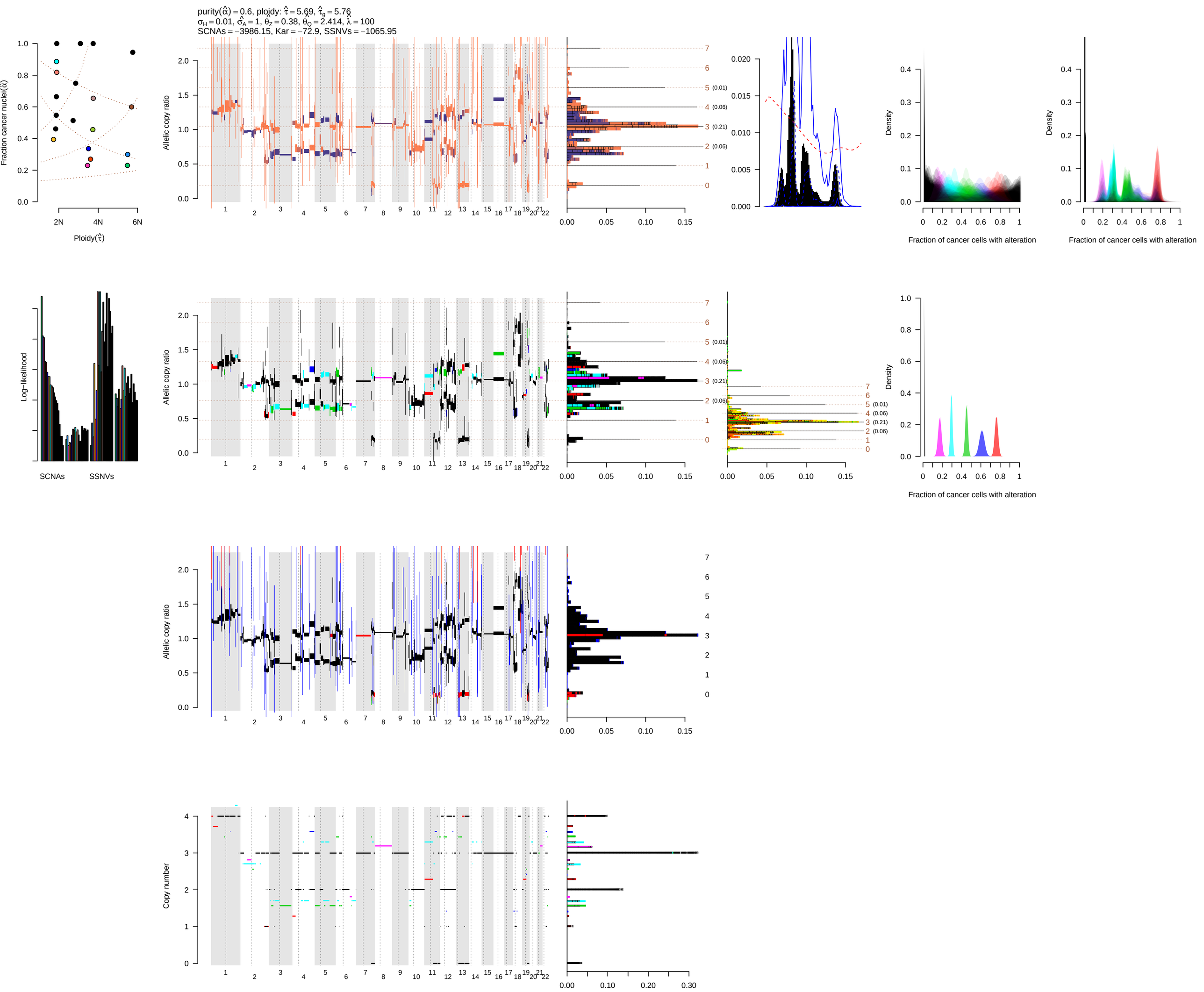

purity($\hat{\alpha}$) = 0.27, ploidy: $\hat{\tau}$ = 3.61, $\hat{\tau}_g$ = 3.73
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.36, θ_Q = 2.804, $\hat{\lambda}$ = 100
SCNAs = −3832.52, Kar = −148.98, SSNVs = −1375.67
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Log−likelihood
SCNAs
SSNVs
Density
Fraction of cancer cells with alteration
Copy number
f_sol2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

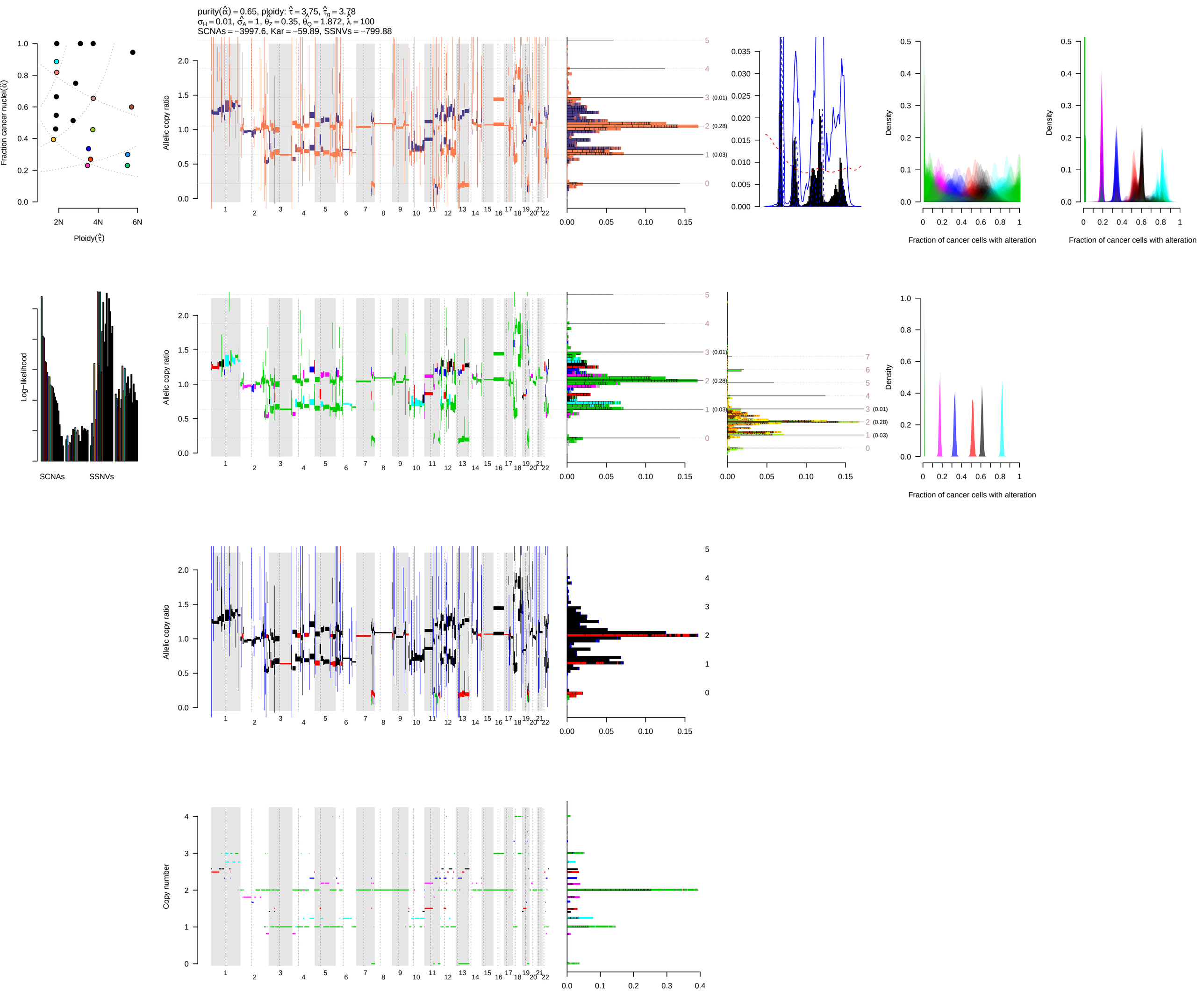

purity($\hat{\alpha}$) = 0.34, ploidy: $\hat{\tau}$ = 3.51, $\hat{\tau}_g$ = 3.75
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.37, θ_Q = 2.416, $\hat{\lambda}$ = 100
SCNAs = −3896.03, Kar = −94.02, SSNVs = −1187.6
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN

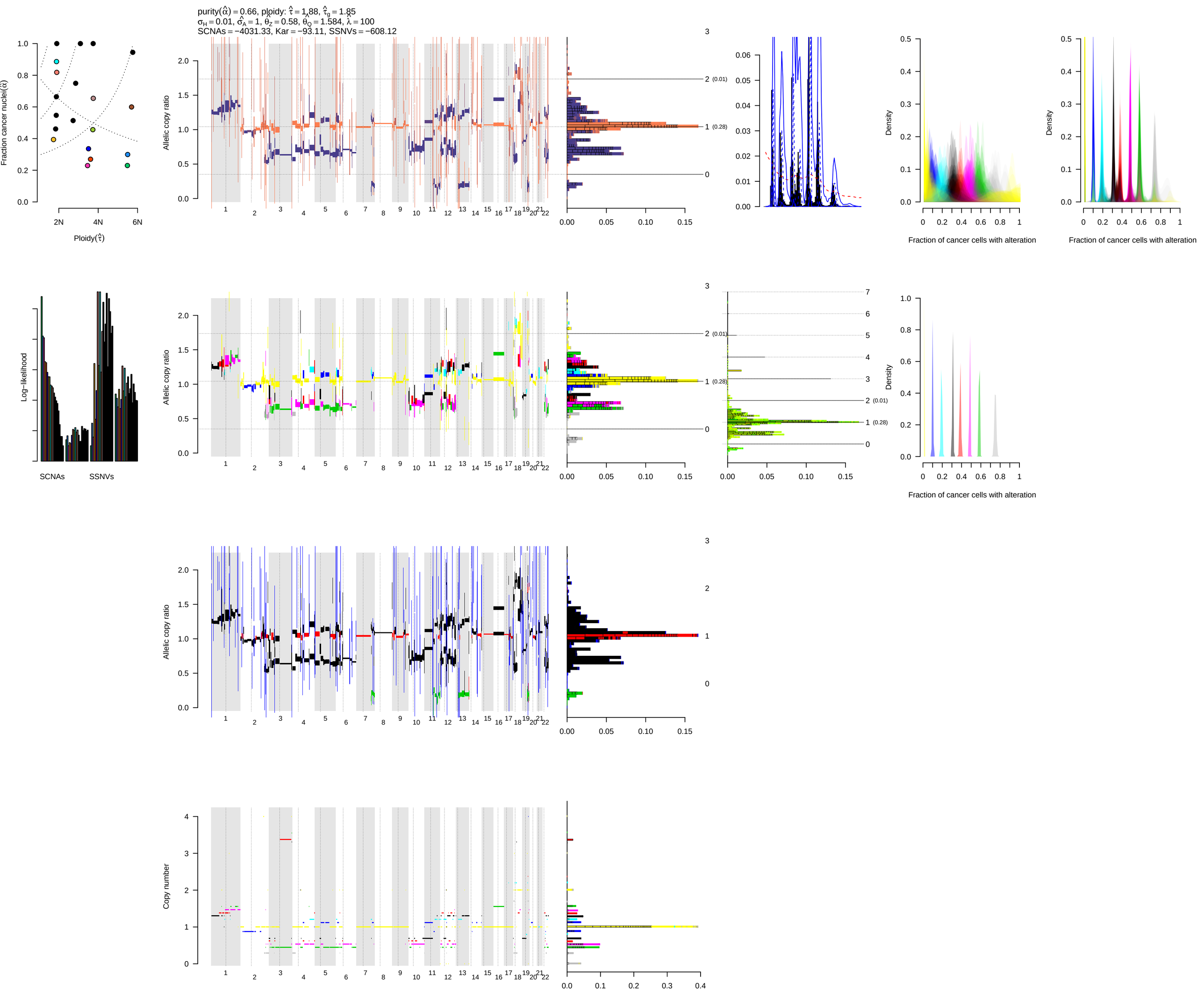

purity($\hat{\alpha}$) = 0.82, ploidy: $\hat{\tau}$ = 1.9, $\hat{\tau}_g$ = 2.01
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.51, θ_Q = 1.42, $\hat{\lambda}$ = 100
SCNAs = −3924.75, Kar = −55.4, SSNVs = −539.62
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_sc/2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

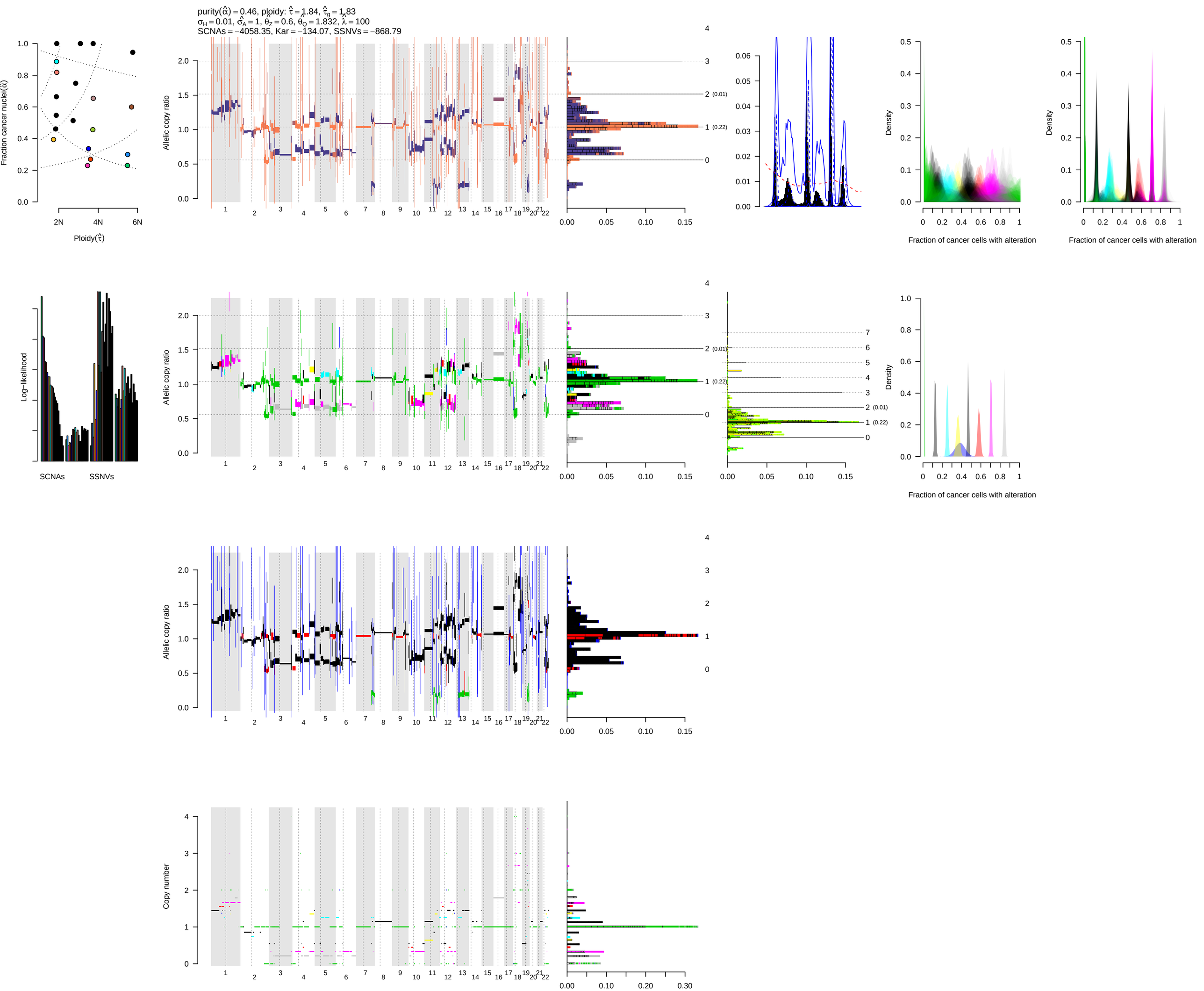

purity($\hat{\alpha}$) = 0.46, ploidy: $\hat{\tau}$ = 3.73, $\hat{\tau}_g$ = 3.88
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.37, θ_Q = 2.223, $\hat{\lambda}$ = 100
SCNAs = −3925.27, Kar = −61.83, SSNVs = −1022.44
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_s$\hat{\alpha}$/2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

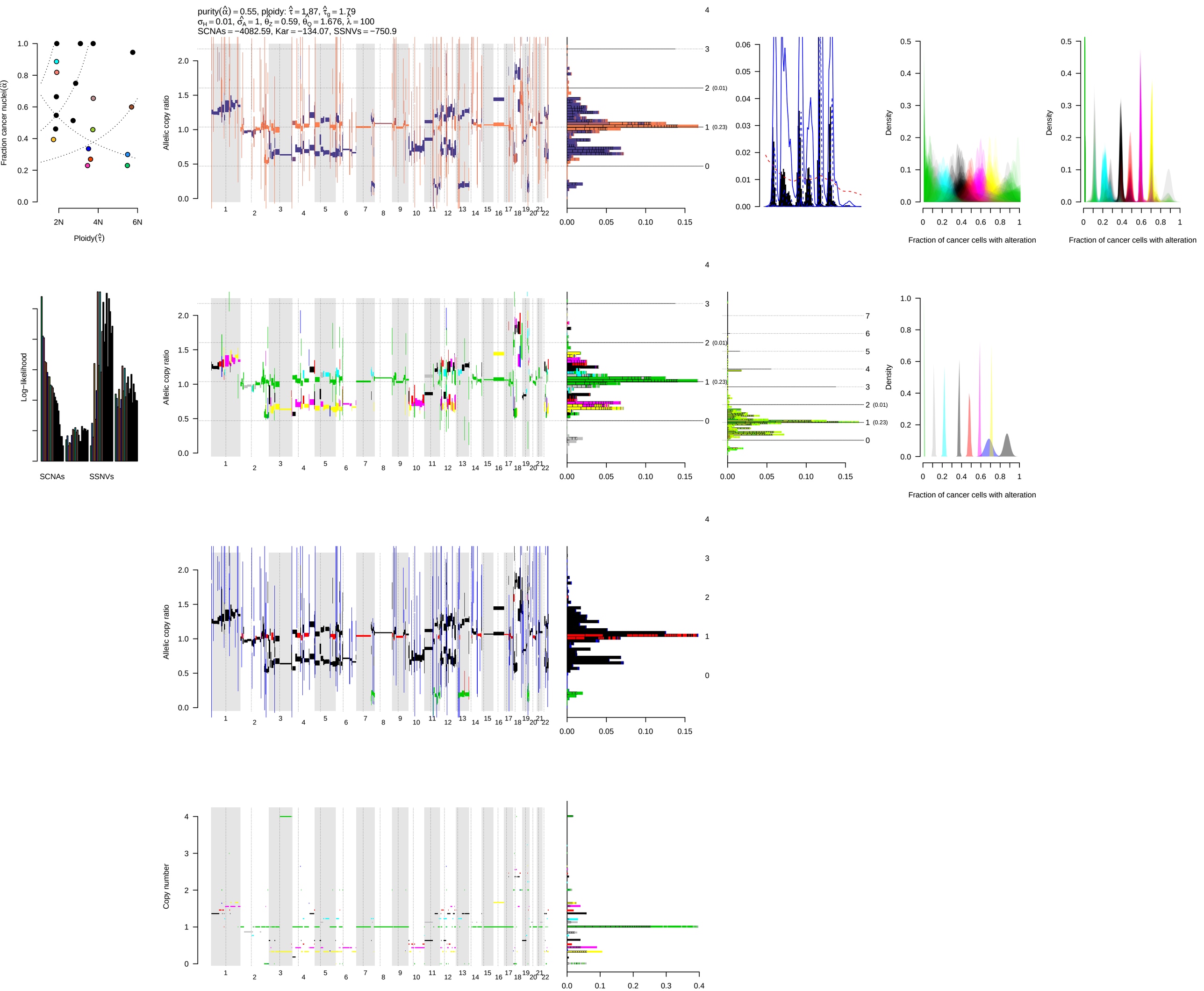

purity($\hat{\alpha}$) = 0.89, ploidy: $\hat{\tau}$ = 1.88, $\hat{\tau}_g$ = 2.01
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.52, θ_Q = 1.375, $\hat{\lambda}$ = 100
SCNAs = −3979.27, Kar = −43.91, SSNVs = −539.97
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_s$\hat{\alpha}$/2
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

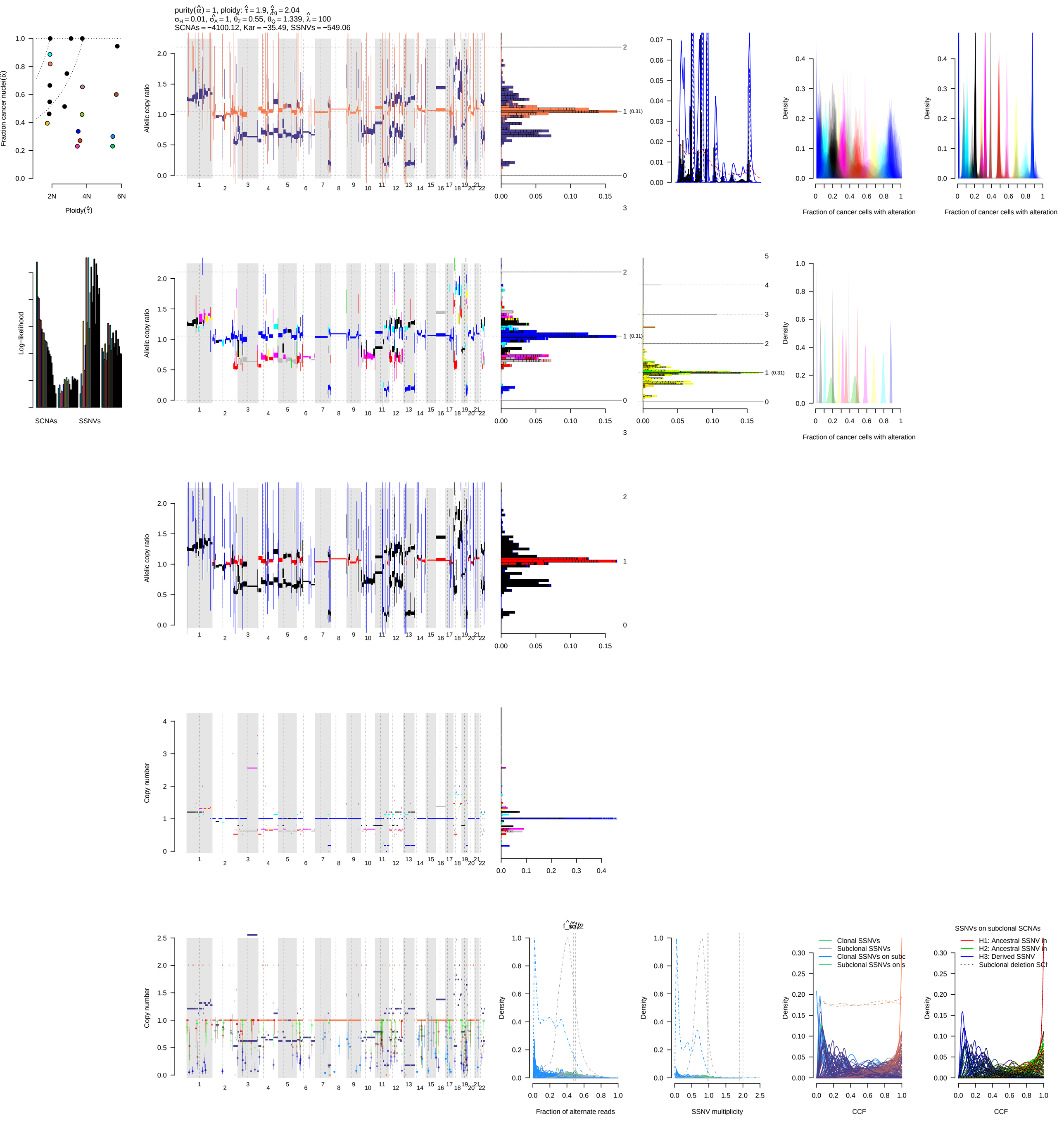

purity($\hat{\alpha}$) = 0.6, ploidy: $\hat{\tau}$ = 5.69, $\hat{\tau}_g$ = 5.76
σ_H = 0.01, $\hat{\sigma}_A$ = 1, $\hat{\theta}_Z$ = 0.38, $\hat{\theta}_Q$ = 2.414, $\hat{\lambda}$ = 100
SCNAs = −3986.15, Kar = −72.9, SSNVs = −1065.95
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_sol/2
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

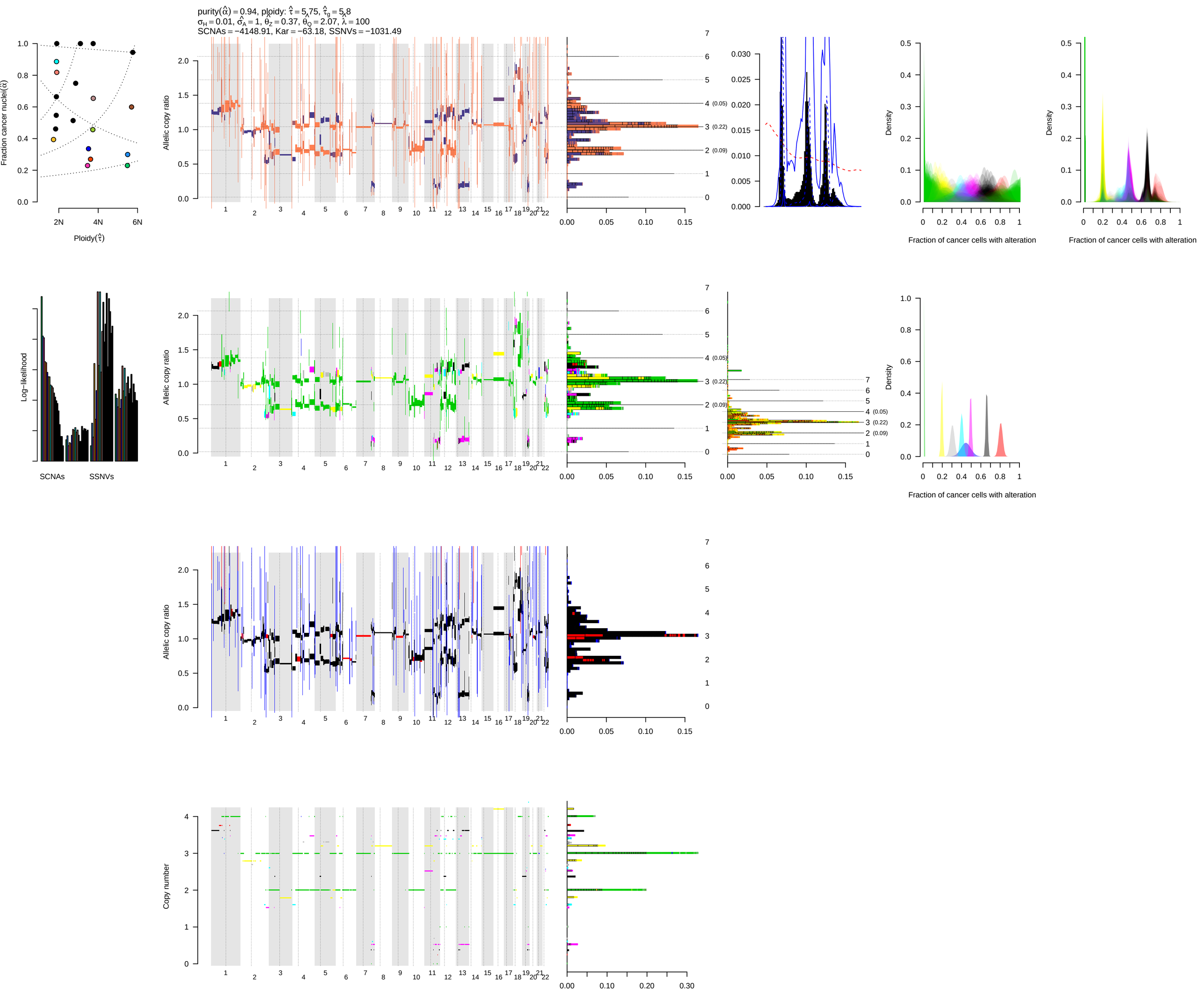

purity($\hat{\alpha}$) = 0.65, ploidy: $\hat{\tau}$ = 3.75, $\hat{\tau}_g$ = 3.78
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.35, θ_Q = 1.872, $\hat{\lambda}$ = 100
SCNAs = −3997.6, Kar = −59.89, SSNVs = −799.88
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_s$\hat{\alpha}$/2
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

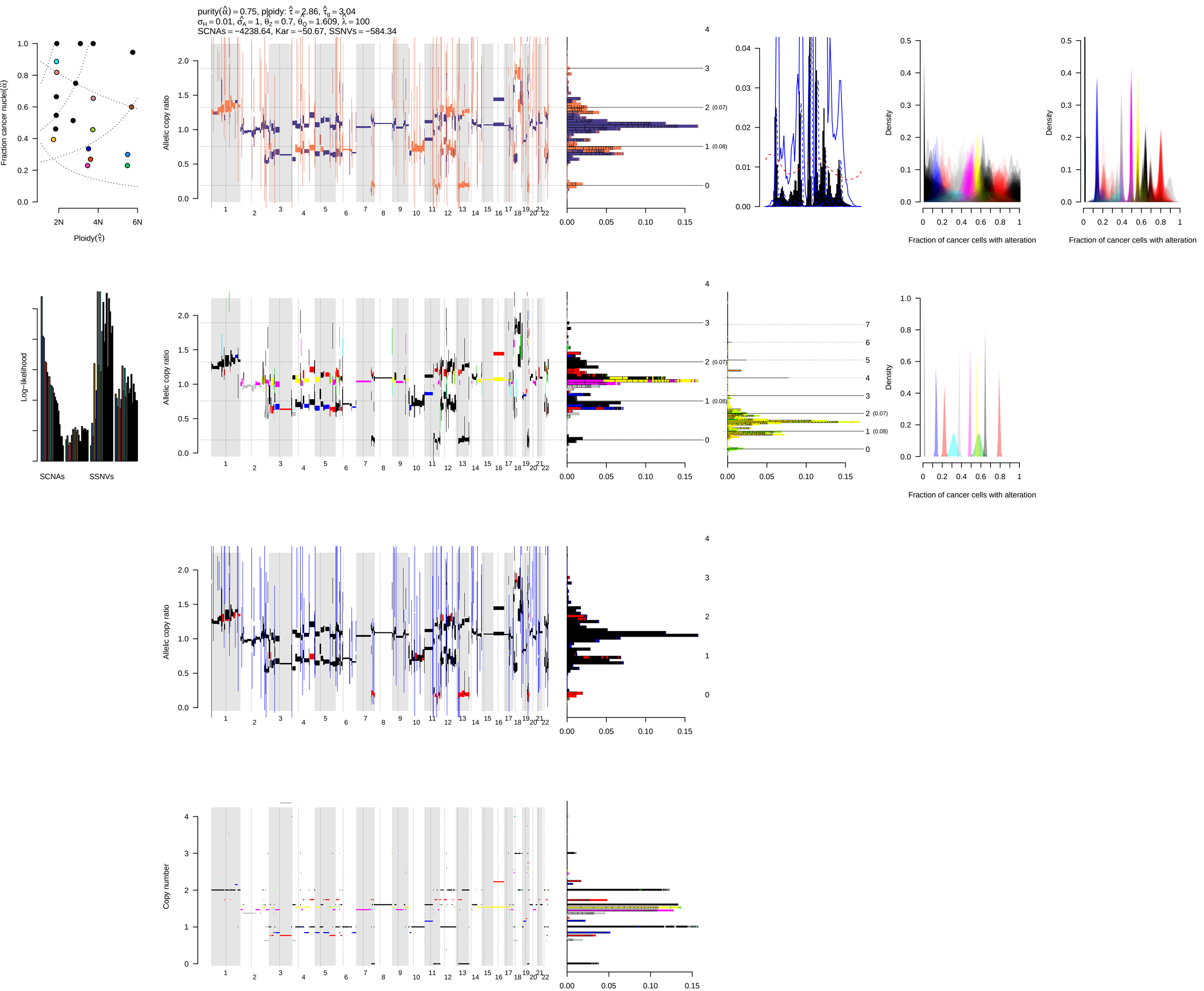

purity($\hat{\alpha}$) = 0.66, ploidy: $\hat{\tau}$ = 1.88, $\hat{\tau}_g$ = 1.85
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.58, θ_Q = 1.584, $\hat{\lambda}$ = 100
SCNAs = −4031.33, Kar = −93.11, SSNVs = −608.12
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

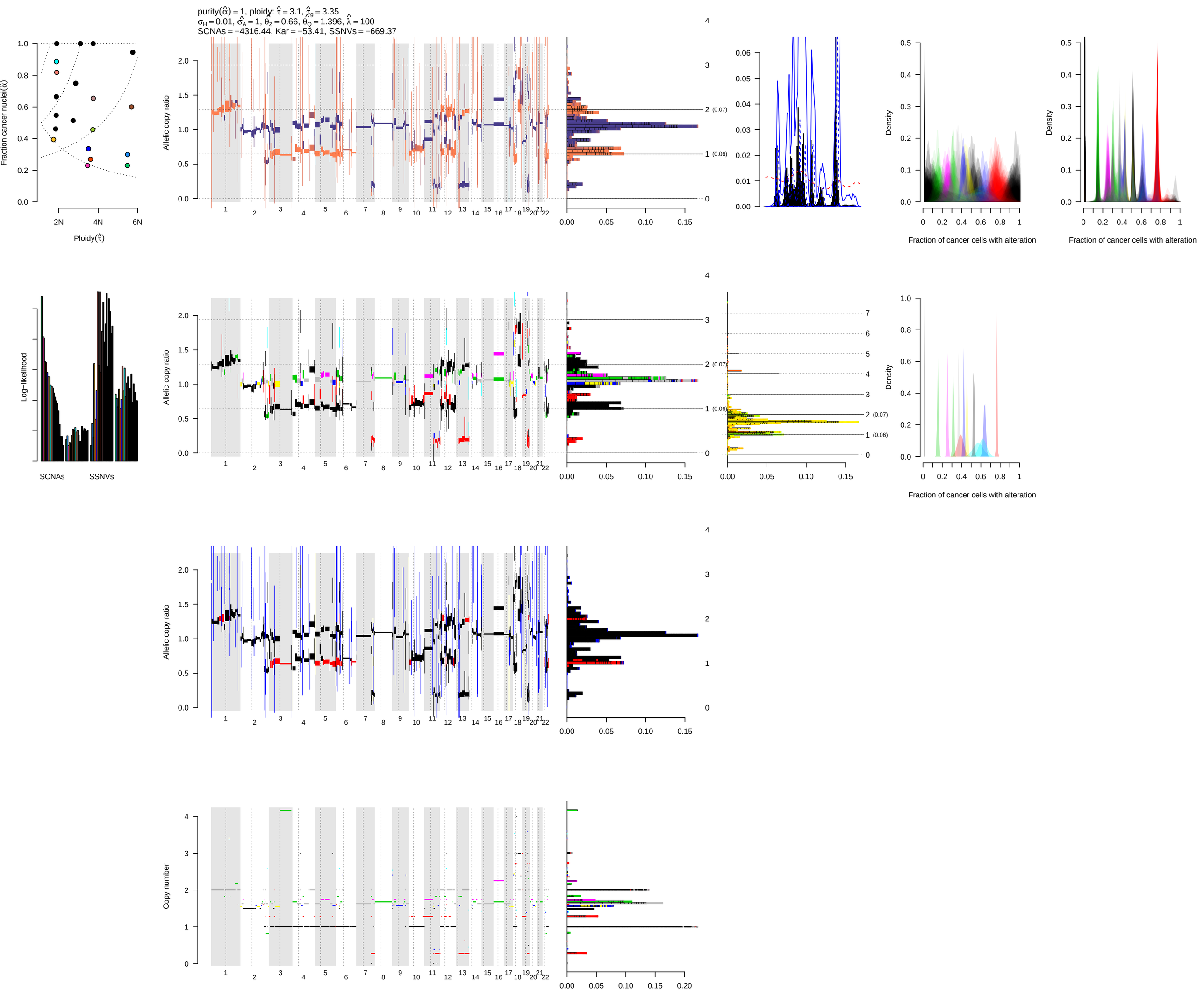

purity($\hat{\alpha}$) = 0.46, ploidy: $\hat{\tau}$ = 1.84, $\hat{\tau}_g$ = 1.83
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.6, θ_Q = 1.832, $\hat{\lambda}$ = 100
SCNAs = −4058.35, Kar = −134.07, SSNVs = −868.79
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

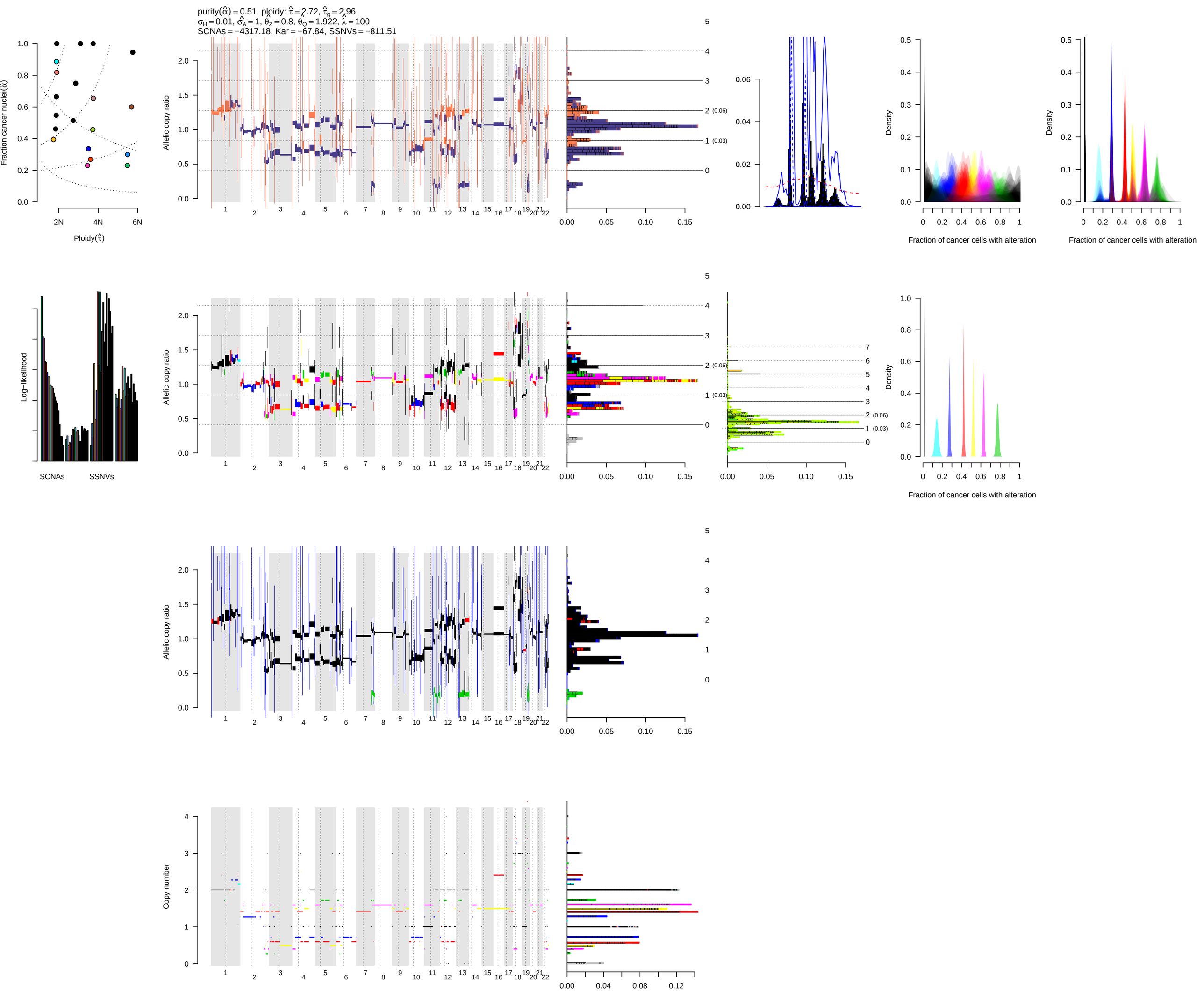

purity($\hat{\alpha}$) = 0.55, ploidy: $\hat{\tau}$ = 1.87, $\hat{\tau}_g$ = 1.79
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.59, θ_Q = 1.676, λ = 100
SCNAs = −4082.59, Kar = −134.07, SSNVs = −750.9
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
f_6/22
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCI

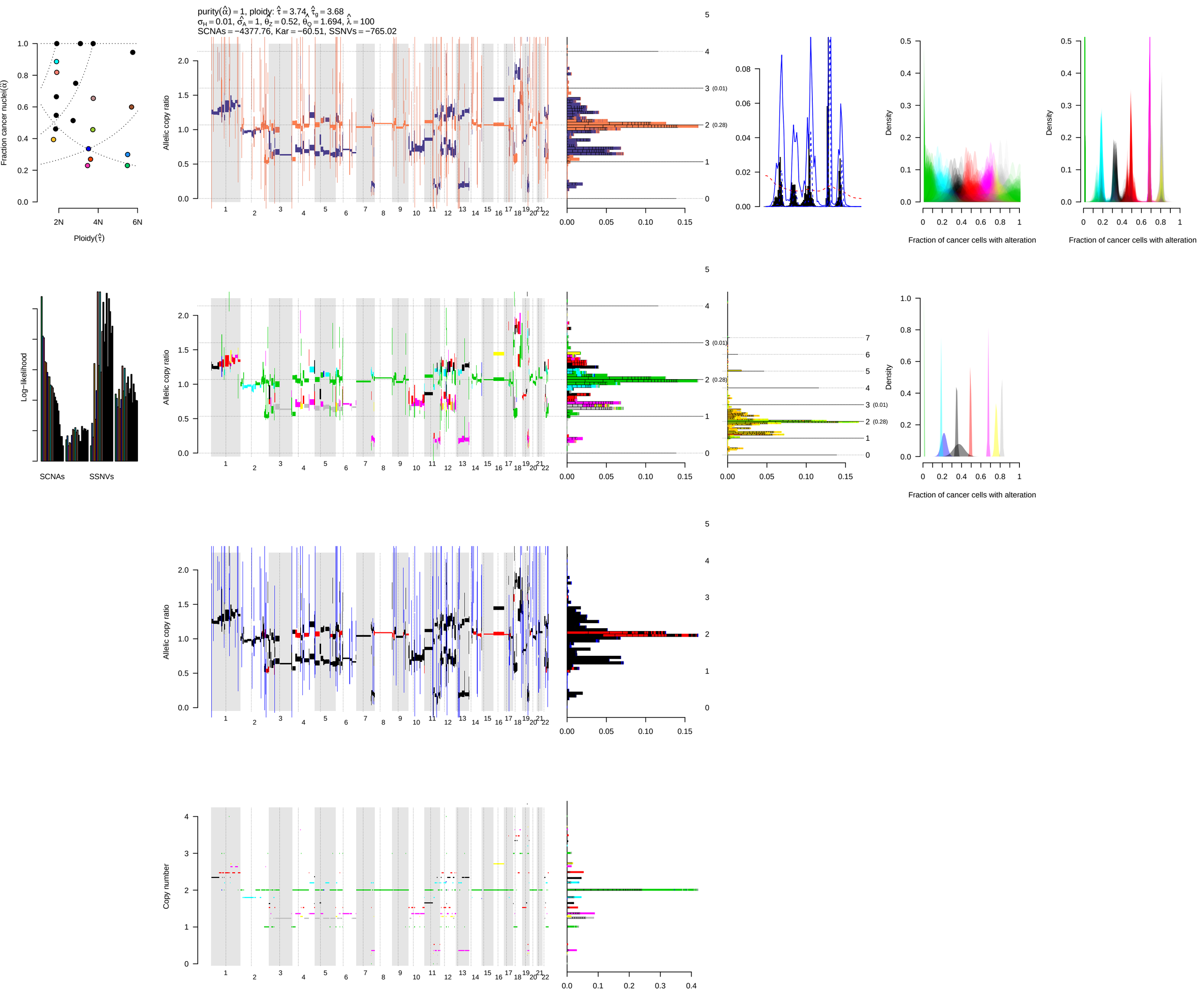

purity($\hat{\alpha}$) = 1, ploidy: $\hat{\tau}$ = 1.9, $\hat{\lambda}_g$ = 2.04
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.55, θ_Q = 1.339, $\hat{\lambda}$ = 100
SCNAs = −4100.12, Kar = −35.49, SSNVs = −549.06
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN


purity($\hat{\alpha}$) = 0.94, ploidy: $\hat{\tau}$ = 5.75, $\hat{\tau}_g$ = 5.8
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.37, θ_Q = 2.07, $\hat{\lambda}$ = 100
SCNAs = −4148.91, Kar = −63.18, SSNVs = −1031.49
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN


purity($\hat{\alpha}$) = 0.75, ploidy: $\hat{\tau}$ = 2.86, $\hat{\tau}_g$ = 3.04
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.7, θ_Q = 1.609, $\hat{\lambda}$ = 100
SCNAs = −4238.64, Kar = −50.67, SSNVs = −584.34
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN


purity($\hat{\alpha}$) = 1, ploidy: $\hat{\tau}$ = 3.1, $\hat{\lambda}_g$ = 3.35
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.66, θ_Q = 1.396, $\hat{\lambda}$ = 100
SCNAs = −4316.44, Kar = −53.41, SSNVs = −669.37
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Log−likelihood
SCNAs
SSNVs
Density
Fraction of cancer cells with alteration
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN


purity($\hat{\alpha}$) = 0.51, ploidy: $\hat{\tau}$ = 2.72, $\hat{\tau}_g$ = 2.96
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.8, θ_Q = 1.922, $\hat{\lambda}$ = 100
SCNAs = −4317.18, Kar = −67.84, SSNVs = −811.51
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
SSNVs on subclonal SCNAs
Clonal SSNVs
Subclonal SSNVs
Clonal SSNVs on subc
Subclonal SSNVs on s
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN


purity($\hat{\alpha}$) = 1, ploidy: $\hat{\tau}$ = 3.74, $\hat{\tau}_g$ = 3.68
σ_H = 0.01, $\hat{\sigma}_A$ = 1, θ_Z = 0.52, θ_Q = 1.694, $\hat{\lambda}$ = 100
SCNAs = −4377.76, Kar = −60.51, SSNVs = −765.02
Fraction cancer nuclei($\hat{\alpha}$)
Ploidy($\hat{\tau}$)
Allelic copy ratio
Density
Fraction of cancer cells with alteration
Log−likelihood
SCNAs
SSNVs
Copy number
Fraction of alternate reads
SSNV multiplicity
CCF
Clonal SSNVs
Subclonal SSNVs
SSNVs on subclonal SCNAs
H1: Ancestral SSNV in
H2: Ancestral SSNV in
H3: Derived SSNV
Subclonal deletion SCN