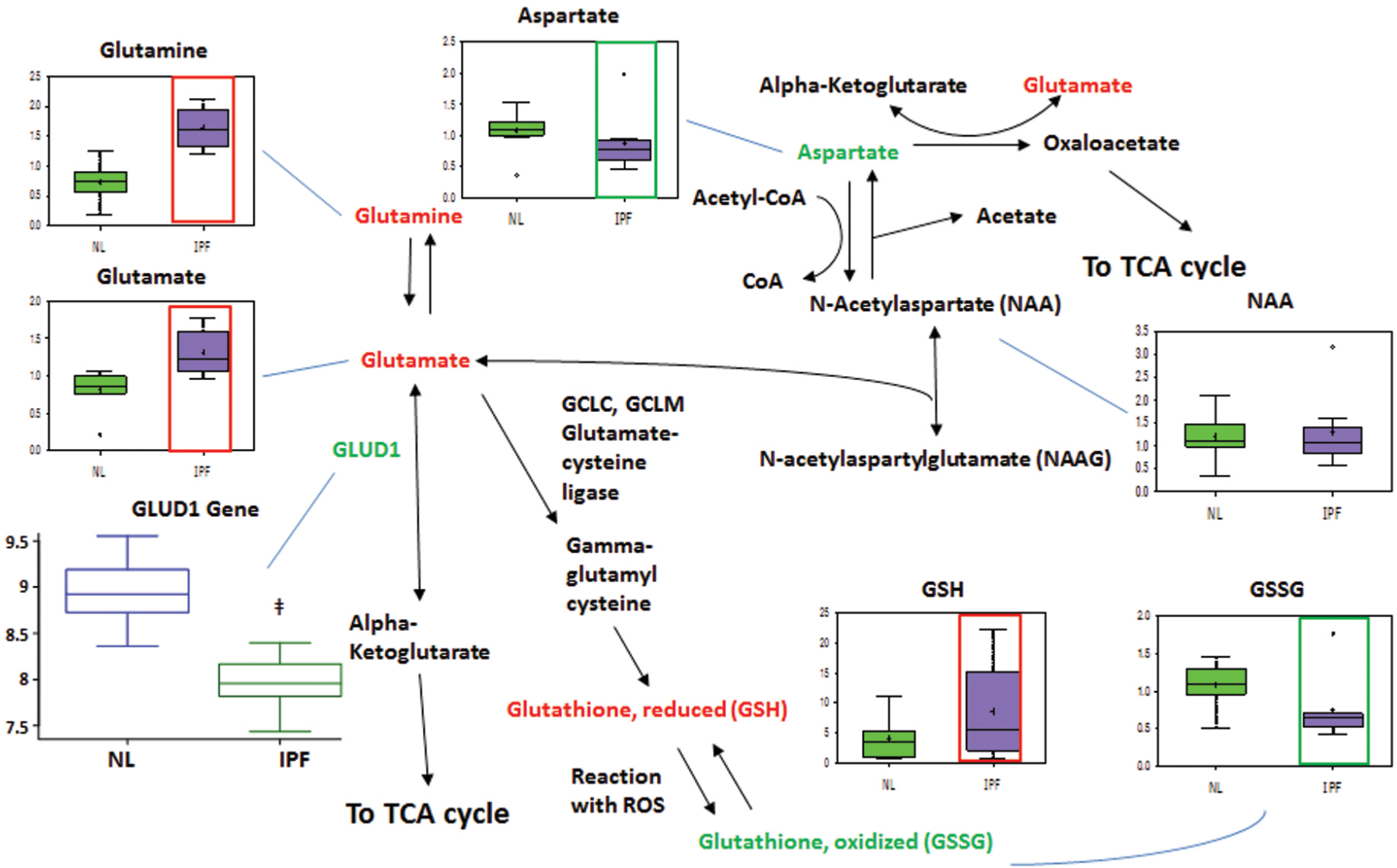
Glutamine
Aspartate
Glutamate
GLUD1 Gene
NAA
GSH
GSSG
NL
IPF
Glutamine
Aspartate
Alpha-Ketoglutarate
Glutamate
Oxaloacetate
Acetyl-CoA
Acetate
CoA
To TCA cycle
N-Acetylaspartate (NAA)
Glutamate
GLUD1
GCLC, GCLM
Glutamate-
cysteine
ligase
N-acetylaspartylglutamate (NAAG)
Gamma-
glutamyl
cysteine
Alpha-
Ketoglutarate
Glutathione, reduced (GSH)
Reaction
with ROS
To TCA cycle
Glutathione, oxidized (GSSG)