roGFP

sensor\_repo <- "../Raw\_Spectra/"  
  
# roGFP1  
roGFP1 <- new("redoxSensor", Rmin = 4.3, Rmax = 30.6, delta = 0.2, e0 = -281)  
  
# roGFP1-R9  
roGFP1\_R9\_data <- read.csv(paste(sensor\_repo, "rogfp1\_R9.csv", sep = ""), header = TRUE)  
roGFP1\_R9\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP1\_R9\_data$Lambda\_reduced,   
 values\_minimum = roGFP1\_R9\_data$reduced,  
 lambdas\_maximum = roGFP1\_R9\_data$Lambda\_oxidized,  
 values\_maximum = roGFP1\_R9\_data$oxidized)  
roGFP1\_R9\_sensor <- newSensorFromSpectra(roGFP1\_R9\_spectra,  
 lambda\_1 = c(380, 400), lambda\_2 = c(460, 480))  
  
# roGFP1-R12 empirical  
roGFP1\_R12\_empirical\_sensor <- new("redoxSensor",   
 Rmin = 0.667, Rmax = 5.207, delta = 0.171)  
  
# roGFP1-R12 from spectra  
roGFP1\_R12\_data <- read.csv(paste(sensor\_repo, "rogfp1\_R12.csv", sep = ""),   
 header = FALSE)  
roGFP1\_R12\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP1\_R12\_data$V3,   
 values\_minimum = roGFP1\_R12\_data$V4,  
 lambdas\_maximum = roGFP1\_R12\_data$V1,  
 values\_maximum = roGFP1\_R12\_data$V2)  
roGFP1\_R12\_sensor <- newSensorFromSpectra(roGFP1\_R9\_spectra,   
 lambda\_1 = c(390, 410), lambda\_2 = c(460, 480))  
  
# roGFP1\_iE  
roGFP1\_iE <- new("redoxSensor", Rmin = 0.856, Rmax = 3.875, delta = 0.5, e0 = -236)  
  
# roGFP2  
roGFP2 <- new("redoxSensor", Rmin = 0.09, Rmax = 1.7, delta = 0.3, e0 = -272)  
  
# grx1\_roGFP2  
grx1\_roGFP2 <- new("redoxSensor", Rmin = 0.3, Rmax = 2.0, delta = 0.5, e0 = -272)  
  
# roGFP2\_iL  
roGFP2\_iL <- new("redoxSensor", Rmin = 0.19, Rmax = 0.45, delta = 0.65, e0 = -229)  
  
# roGFP3  
roGFP3\_data <- read.csv(paste(sensor\_repo, "rogfp3.csv", sep = ""), header = TRUE)  
roGFP3\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP3\_data$Lambda\_330,   
 values\_minimum = roGFP3\_data$X.330.mv,  
 lambdas\_maximum = roGFP3\_data$Lambda\_240,  
 values\_maximum = roGFP3\_data$X.240.mv)  
  
  
# roGFP4  
roGFP4\_data <- read.csv(paste(sensor\_repo, "rogfp4.csv", sep = ""), header = TRUE)  
roGFP4\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP4\_data$Lambda\_320,   
 values\_minimum = roGFP4\_data$X.320.mv,  
 lambdas\_maximum = roGFP4\_data$Lambda\_230,  
 values\_maximum = roGFP4\_data$X.230.mv)  
  
# roGFP5  
roGFP5\_data <- read.csv(paste(sensor\_repo, "rogfp5.csv", sep = ""), header = TRUE)  
roGFP5\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP5\_data$Lambda\_330 ,   
 values\_minimum = roGFP5\_data$X.330.mv,  
 lambdas\_maximum = roGFP5\_data$Lambda\_250,  
 values\_maximum = roGFP5\_data$X.250.mv)  
  
# roGFP6  
roGFP6\_data <- read.csv(paste(sensor\_repo, "rogfp6.csv", sep = ""), header = TRUE)  
roGFP6\_spectra <- spectraMatrixFromValues(  
 lambdas\_minimum = roGFP6\_data$Lambda\_310 ,   
 values\_minimum = roGFP6\_data$X.310.mv,  
 lambdas\_maximum = roGFP6\_data$Lambda\_230,  
 values\_maximum = roGFP6\_data$X.230.mv)

gfp3\_spectraPlot <- plotSpectra(roGFP3\_spectra, "Reduced", "Oxidized") + ggtitle("roGFP3")  
gfp4\_spectraPlot <- plotSpectra(roGFP4\_spectra, "Reduced", "Oxidized") + ggtitle("roGFP4")  
gfp5\_spectraPlot <- plotSpectra(roGFP5\_spectra, "Reduced", "Oxidized") + ggtitle("roGFP5")  
gfp6\_spectraPlot <- plotSpectra(roGFP6\_spectra, "Reduced", "Oxidized") + ggtitle("roGFP6")  
  
  
plot\_grid(gfp3\_spectraPlot, gfp4\_spectraPlot, gfp5\_spectraPlot, gfp6\_spectraPlot)

