mixOmics: a framework based on modules (for mixOmics publication)
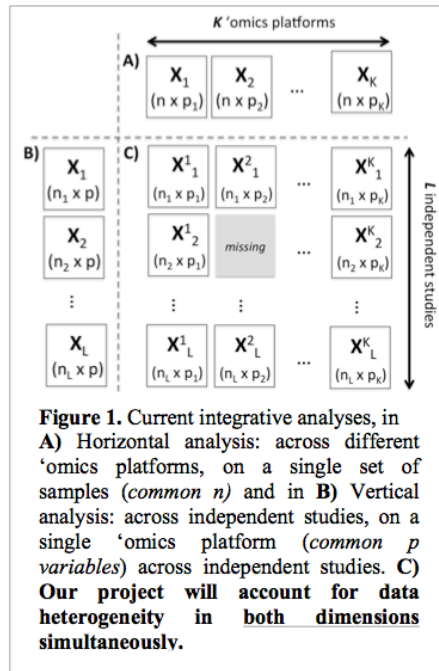
mixMC: multivariate insights into $\underline{M}$icrobial $\underline{C}$ommunities
PCA, sPLSDA with multilevel and log ratio transformation for compositional data
graphlan cladogram plots, contribution plots

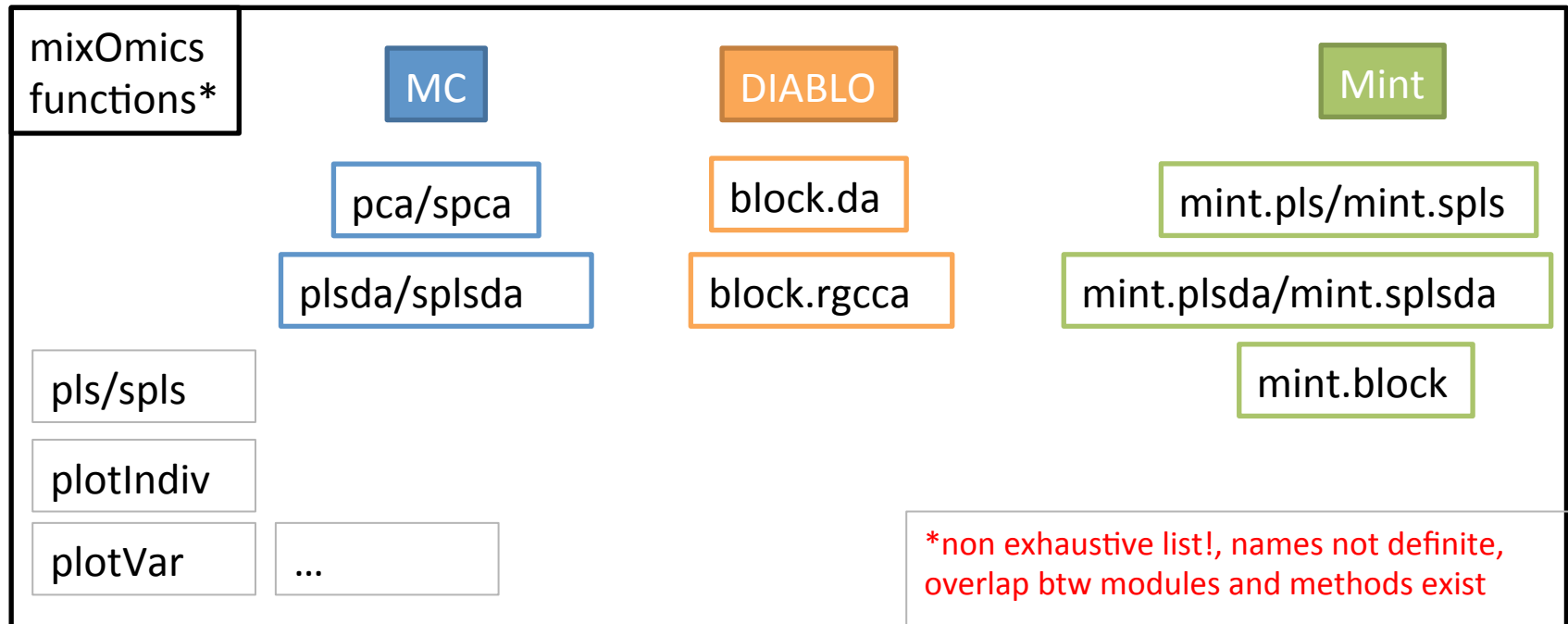**mixDIABLO**: $\underline{D}$ata $\underline{I}$ntegration $\underline{A}$nalysis for $\underline{B}$iomarker discovery using $\underline{L}$atent variable approaches for $\underline{O}$mics studies
sGCCA Discriminant Analysis
circos plots, dataframe plots

mixMint: mixOmics for $\underline{mu}$lti-group $\underline{Int}$egrative analysis
novel multi group pls and plsda, sgccda analyses

Figure 1. Current integrative analyses, in **A)** Horizontal analysis: across different 'omics platforms, on a single set of samples (*common n*) and in **B)** Vertical analysis: across independent studies, on a single 'omics platform (*common p variables*) across independent studies. **C) Our project will account for data heterogeneity in both dimensions simultaneously.**

my challenging 10% chance of success grant for 2017

mixOmics functions*	MC	DIABLO	Mint
	pca/spca	block.da	mint.pls/mint.spls
	plsda/splsda	block.rgcca	mint.plsda/mint.splsda
			mint.block

pls/spls

plotIndiv

plotVar

...

*non exhaustive list!, names not definite, overlap btw modules and methods exist

Feb | **V5.2.0**

March

Update to **V6.0.0:**
- all pls-like functions will be wrappers of a single function – <u>does not change calls to functions</u>
  - block.pls ('horizontal analysis', multiblock integration, DIABLO module) ,
  - mint.pls ('vertical analysis', multigroup analysis)
  - mint.block.pls (horiz + vertical)
- DIABLO visualisation functions: circos plots, plotIndiv, plotVar
- internal arguments added in functions (e.g. plsda(X, Y, log.ratio =TRUE)
  - logratio (mixMC module, in plsda)
  - multilevel (in pls, plsda, pca)

=> manuscripts multigroup (Florian) and Diablo (Amrit)

April

- CRAN submission V6.0.0; include % contribution to each function
- **submission of multigroup and DIABLO papers**
- update mixOmics website modules: DIABLO (Florian), mixMC (FR, VL)

=> manuscript mixOmics (Florian first author, mixOmics team, Amrit, Benoit G)

May

- **submission mixOmics paper**
- Update v6.1.0
  - unifying "mixOmics" function (to discuss)
  - which.function.to.use(). Ask questions to the user to determine which function is appropriate to use

June / July

- UserR/Workshops
- Expand to other fields (brain imaging, plants, metabolomics, …
- Marketing / Business Devel aspects