Streamlining complex analyses of in vivo data with INVIVOLDA shiny application

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Dorethey Gorham, Day of the Armada
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useR! | July 9-12, 2019
Drug Development Process

[Diagram showing the drug development process with phases: Basic Research, Drug Discovery, Pre-Clinical, Clinical Trials, FDA Review, Post-Approval Research & Monitoring. Each phase is divided into sub-phases (e.g., Phase I, Phase II, Phase III) indicating the number of volunteers (Tens, Hundreds,Thousands).]

Volha Tryputsen | useR! | July 9-12, 2019
Janssen Oncology In Vivo support
In vivo oncology studies
In vivo oncology studies

\[ \downarrow \text{tumor volume} \quad \text{no difference in body weight change} \quad \uparrow \text{days survived} \]
In vivo oncology studies

- Tumor volume
- Body weight
- Days survived

What treatment is better?
In vivo oncology studies data analysis

- Longitudinal data analysis
- Software limitations
  - Missing data is a problem
  - Need a better method
  - No diagnostics ?!
  - ....
- Time consuming...reproducible? traceable? 😐
In vivo oncology studies data analysis

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Mood....

IT'S MONDAY

TIME TO TAKE OVER
ONCOLOGY INVIVO ANALYSES
IN GRAPHPAD PRISM
Statistics offering to oncology group

- We can deal with missing data!
- We can offer a better method!
- Yes to model diagnostics!
- We can develop **custom software**!
- Efficiency! Reproducibility! Traceability! 😊
InVivoLDA shiny app
Why InVivoLDA shiny app?

- Modern Data Viz
- Powerful Method for LDA
- Model diagnostics
- Stat report in 5 mins
- Efficiency, traceability, reproducibility
Why InVivoLDA shiny app?

Modern Data Viz

Powerful Method for LDA

Model diagnostics

Stat report in 5 mins

Efficiency, traceability, reproducibility
Shiny app framework to support oncology in vivo research at Janssen

- Modeling tumor growth
- Sample size calculation
- Survival analysis

InVivoLDA
Jennifer Jacobs, *Stowaway*

Jennifer is a New York based artist living with Type 1 diabetes.

Thank you!

- Kjell Johnson
- Bill Pikounis
- Stefan Avey
- Paulo Bargo
- Satish Murthy

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