

Reproducible Research: Write a Paper using R

My Name Goes Here

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Abstract

Background: This is the background.

Methods: My methods are perfect. Don't criticize them.

Results: My results are entirely reproducible.

Conclusions: R Markdown makes reproducible research through literate programming pretty easy.

1 Background

This will be the background section. I will probably have to make a citation or two here like this (1,2)

2 Methods

Here I will describe my amazing biomarker discovery project and how I quantitatively measured 45231 proteins simultaneously with mass spectrometry using one internal standard on a 10 min cycle time.

2.1 Figures

I will embed a figure like this. I will be cross-referenced. See figure 1

But I might also want to include a reference against the one ELISA I tested of my 45231 proteins. See figure 2.

2.2 Inline Calculations

When you are reporting your amazing results you can have inline code like the median value of x being reported as 43.9.

2.3 Tables

I have found `xtable()` a little easier to control than `kable()` but both work. See table 1

	a	b	c
1	1	2	2
2	2	3	6
3	3	4	12
4	4	5	20
5	5	6	30

Table 1: xtable does a nice job

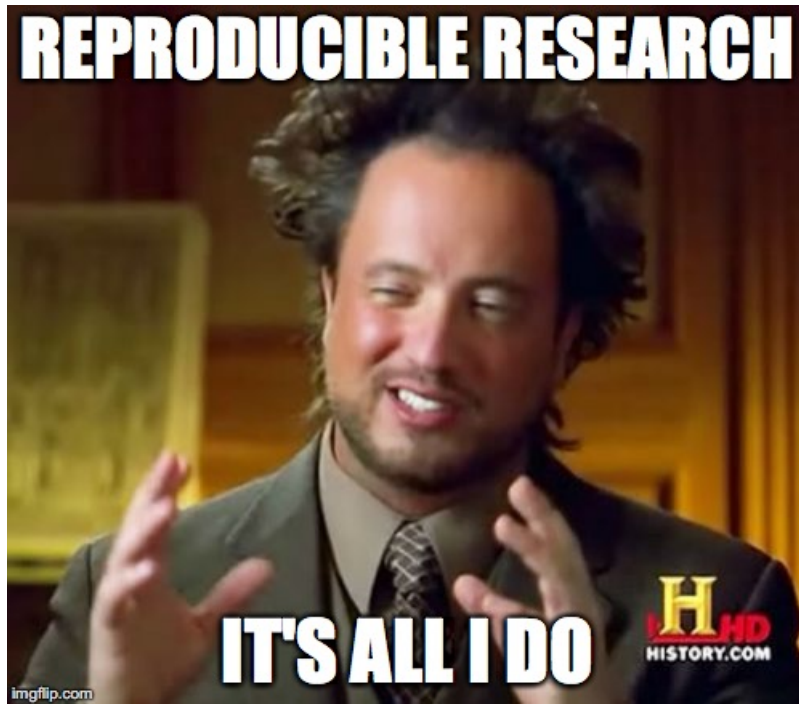


Figure 1: This the is the ancient aliens guy.

Reproducible Figure of My Mass Spec Protein Quant

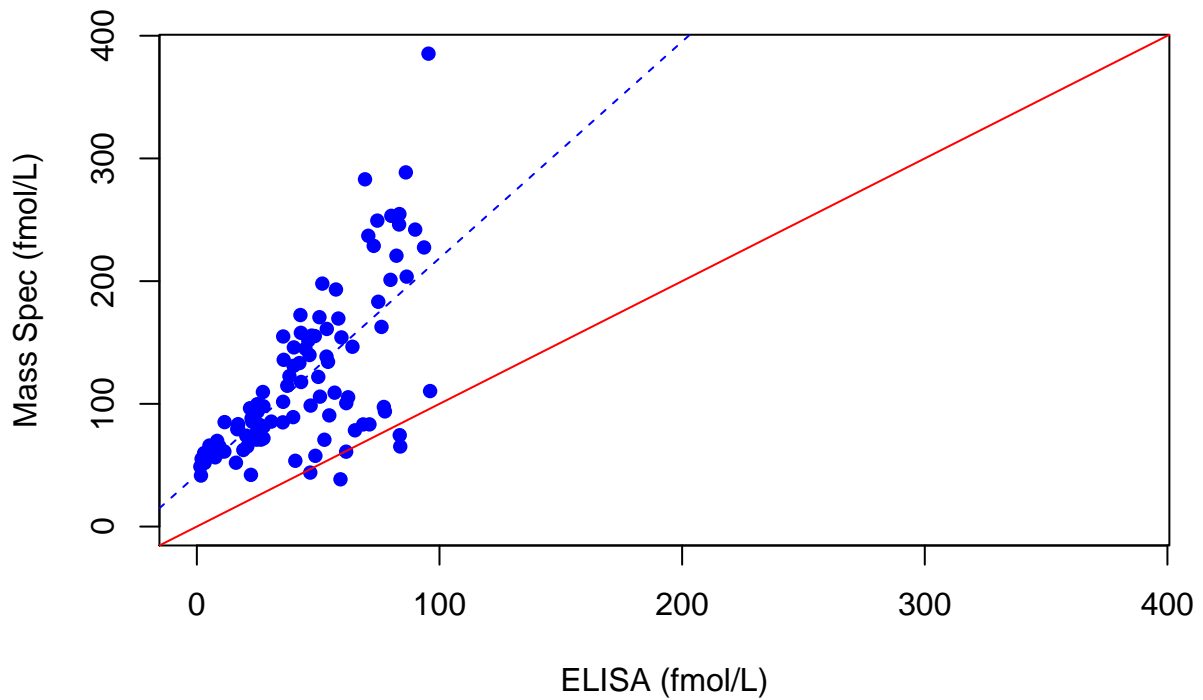


Figure 2: This is a reproducible figure

2.4 Math

Math works pretty magically using L^AT_EX syntax. For example, $\sin^2 x + \cos^2 x = 1$. And:

$$\exp(i\pi) = -1$$

Equations can be cross-referenced just like tables and figures.

3 Discussion

Clearly this method is awesome and I should get more funding from CIHR or NIH. Time to self-cite to improve my h-index (3) and maybe cite multiple papers together to show how the .csl file takes care for appropriate reference formatting. (1–3)

4 Conclusion

I hope this makes writing a reproducible paper easier for you.

References

1. Brooks ER, Haymond S, Rademaker A, Pierce C, Helenowski I, Passman R, et al. Contribution of symmetric dimethylarginine to gfr decline in pediatric chronic kidney disease. *Pediatr Nephrol*. Springer; 2017;1–8.
2. Li M, Diamandis EP, Paneth N, Yeo K-TJ, Vogt H, Master SR. Wellness initiatives: Benefits and limitations. *Clin Chem. Clinical Chemistry*; 2017;63:1063–8.
3. Holmes DT, Levin A, Forer B, Rosenberg F. Preanalytical influences on DPC IMMULITE 2000 intact PTH assays of plasma and serum from dialysis patients. *Clin Chem. Clinical Chemistry*; 2005;51:915–7.