

# **Characterizing dose/exposure response of biologics: Are we there yet?**

ASCPT 2016 Annual Meeting

## The top 20 drugs in 2020--worldwide sales

February 22, 2016

1	1. Humira	
2	2. Revlimid	
3	3. Opdivo	
4	4. Harvoni	
5	5. Prevnar 13	
6	6. Avastin	
7	7. Herceptin	
8	8. Soliris	
9	9. Tecfidera	
10	10. Orkambi	
11	11. Entresto	
12	12. Rituxan	
13	13. Enbrel	
14	14. Remicade	
15	15. Xtandi	
16	16. Januvia	
17	17. Keytruda	
18	18. Eliquis	
19	19. Eylea	
20	20. Triumeq	

# Genesis of this symposium: Our observations

## Small molecules

- Robust phase 2b studies
- Clear evaluation of lowest efficacious dose
- Need to maximize therapeutic window

## Large molecules

- Historically, less robust phase 2b studies
- Cost of goods, not safety, may determine phase 3 doses
- Traditionally, narrower disease focus

Were potential differences in dose/exposure response curves ....

- Truly due to the different moieties ?, OR
- Due to the endpoints/diseases biologics have traditionally be used in?, OR
- Due to less rigorous phase 2b trials?, OR
- Due to unique biology that drives non-monotonic responses?

# Today's agenda

Title	Speaker	Rationale
Model-based meta-analysis of clinical dose-response of biologics	Joseph Wu, Pfizer Ltd	Current state of knowledge - literature and internal Pfizer
The confluence of disease, endpoints, pharmacology, modality and their endpoints	Bernd Meibohm, University of Tennessee	“Unpicking” of contributory factors
The challenges of developing a biologic with unclear/non-monotonic dose-response	Lorin Roskos, MedImmune	Impact of non-monotonicity on drug development
Characterizing Exposure Response of Biologics: Challenges and Opportunities—Regulatory Perspective	Yaning Wang, FDA	Using exposure-response to support registration