

Comment on “The sorptive capacity of animal protein [DeBruyn and Gobas. 2007. Environ Toxicol Chem 26:1803-1808]”

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In their article, DeBruyn and Gobas [1] make the following claims: “Here, we present a compilation and meta-analysis of published data to estimate the relative sorptive capacities of animal proteins and lipids for neutral organic chemicals” and “[i]n the present paper, we present a compilation and meta-analysis of literature data to estimate the relative sorptive capacities of lipids and proteins for neutral organic chemicals with log octanol/water partition coefficient (K_{OW}) values ranging from -1 to +9.” However, the authors use the following ionizable compounds and salts (i.e., non-neutral organic compounds) to develop their model: acetylsalicylic acid ($pK_a=3.49$ [2]); 2,4-dichlorophenoxy acetic acid ($pK_a=2.64-3.31$ [3]); dextropropoxyphene-HCl; amitriptyline-HCl; and thioridazine-HCl. These compounds would be effectively entirely ionized at physiological pH values ($pH=7.4$), rendering the assumption of neutrality and any subsequent analyses based thereupon incorrect.

References

- [1] A. DeBruyn, F. Gobas, The sorptive capacity of animal protein, *Environmental Toxicology and Chemistry* 26 (2007) 1803–1808.
- [2] J. Kotz, P. Treichel, J. Townsend, *Chemistry & Chemical Reactivity*, Cengage Learning: Scarborough, ON, Canada, 2009.
- [3] International Programme on Chemical Safety, *Environmental Health Criteria 84: 2,4-Dichlorophenoxyacetic Acid (2,4-D) - Environmental Aspects*, World Health Organization: Geneva, CHE, 1989.

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