



DSF Introduction

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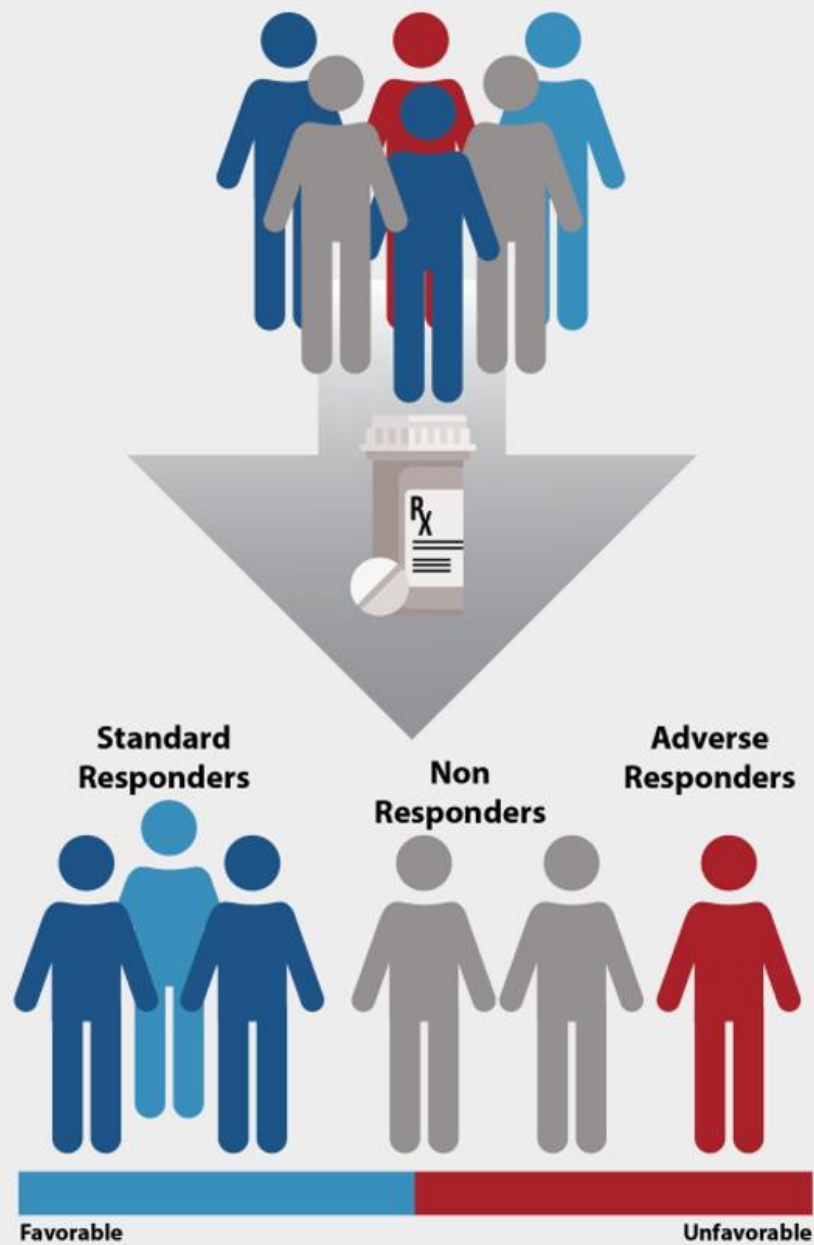
Postdoctoral Research Associate

Pharmacy Practice and Science

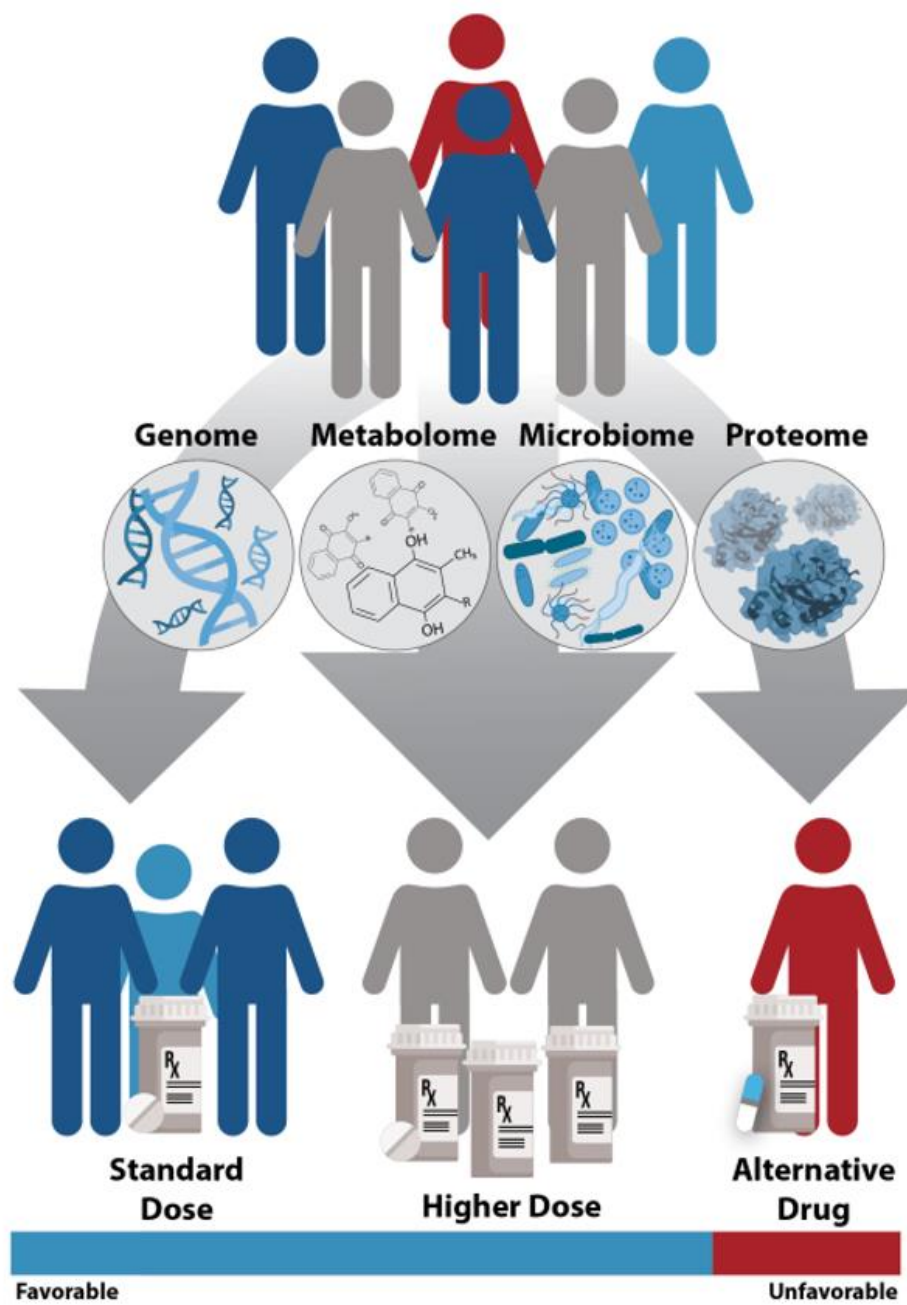
College of Pharmacy

THE UNIVERSITY OF ARIZONA

Standard Approach to Prescribing Medication



Precision Medicine Approach



Precision Medicine:
an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person

Pharmacogenomics:
an approach used by precision medicine, is the study of how genes affect a person's response to drugs

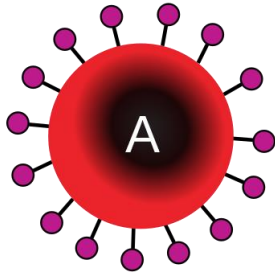
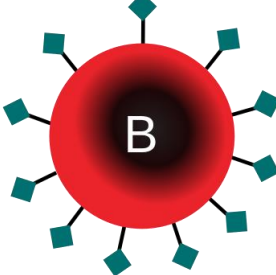
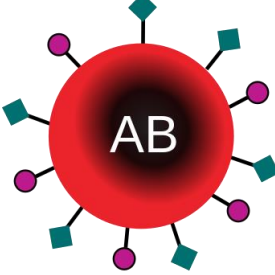
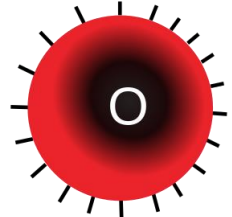


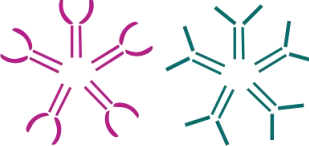



Phenotypes

What ABO blood types and subtypes associate with risk of disease?

ABO blood group system

Heparin-induced
thrombocytopenia (HIT)

Warfarin

	Group A	Group B	Group AB	Group O
Red blood cell type				
Antibodies in plasma	 Anti-B	 Anti-A	None	 Anti-A and Anti-B
Antigens in red blood cell	 A antigen	 B antigen	 A and B antigens	None

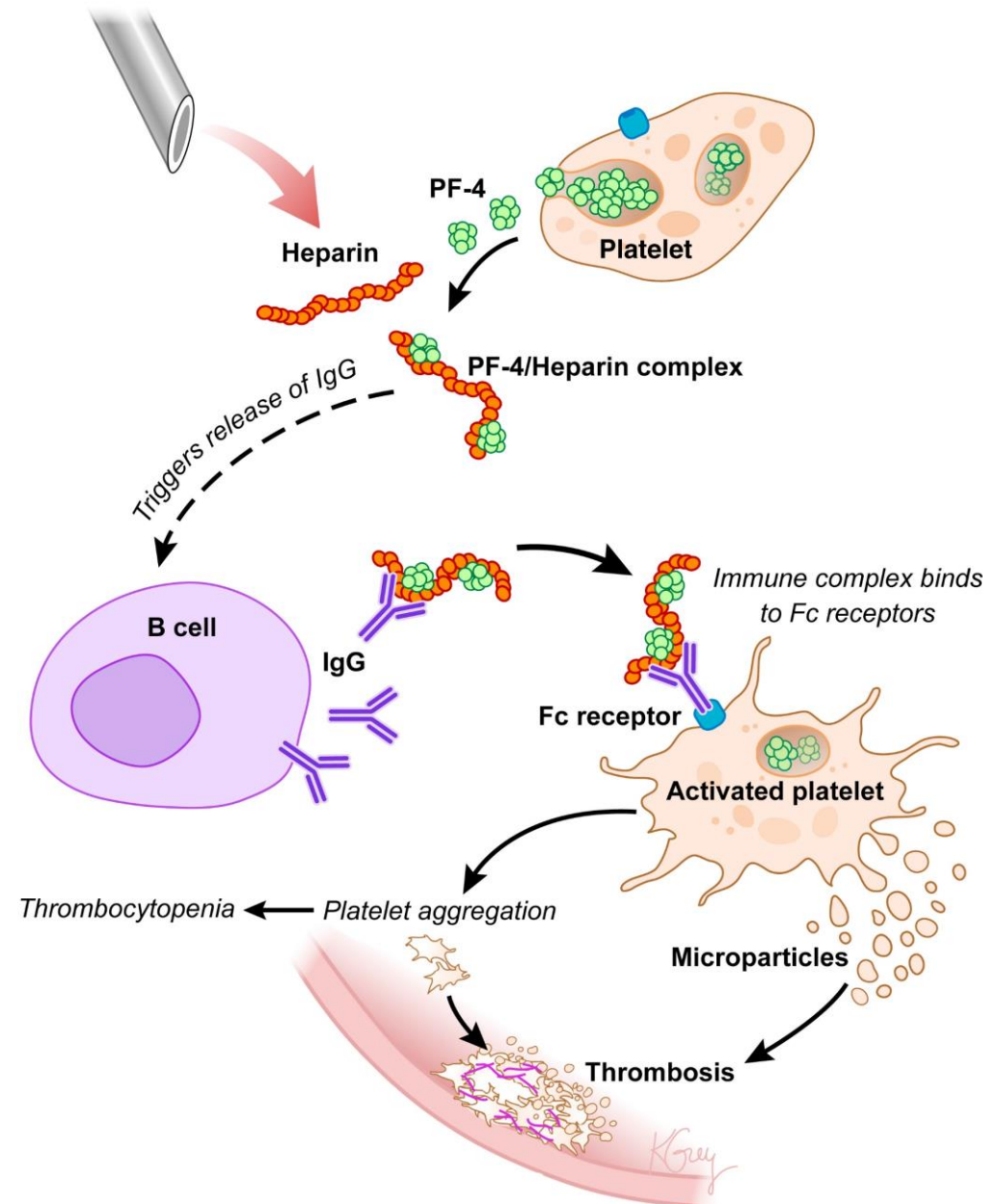
Phenotypes

ABO blood group system

Heparin-induced thrombocytopenia (HIT)

Warfarin

Who is at risk for developing HIT?



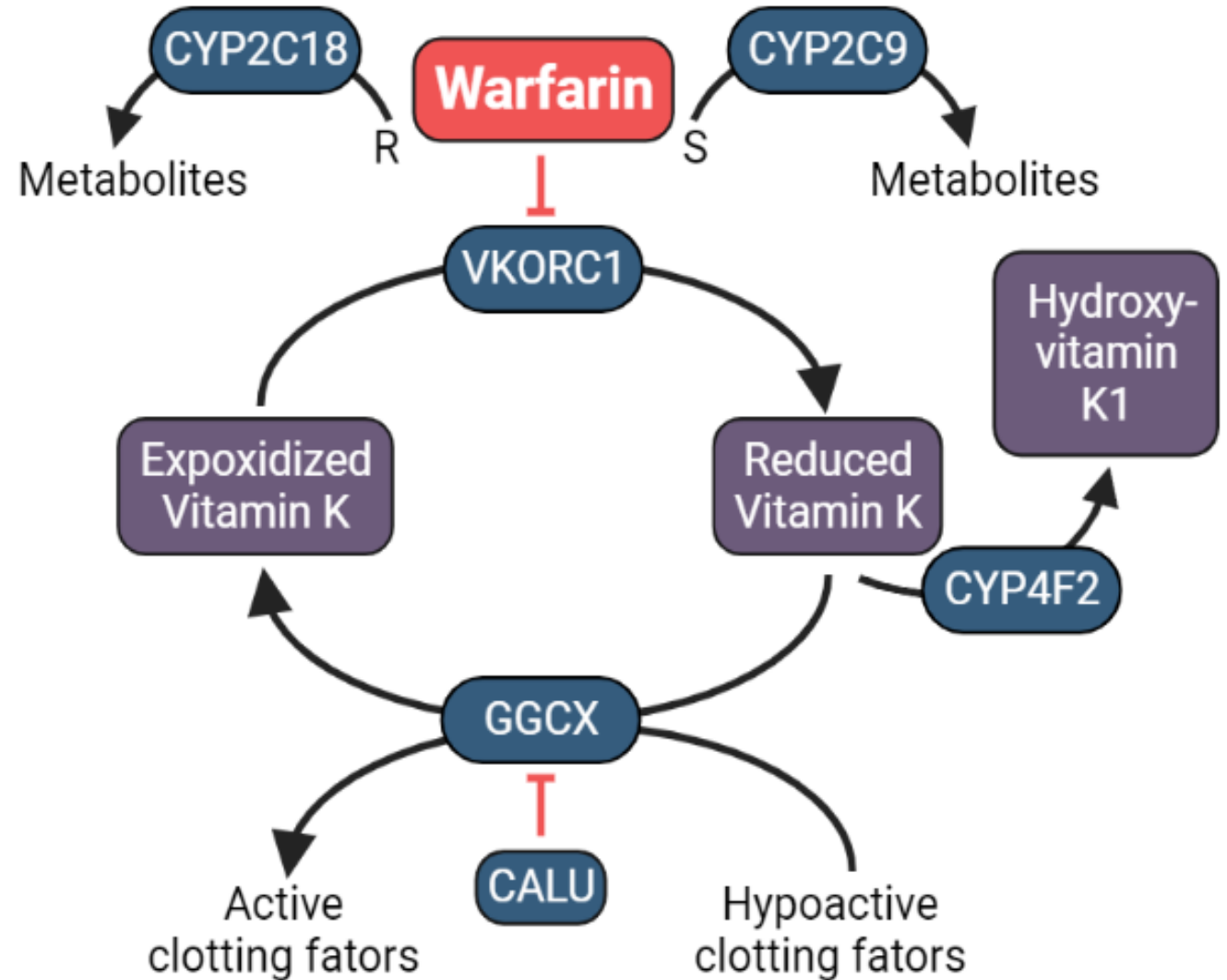
Phenotypes

ABO blood group system

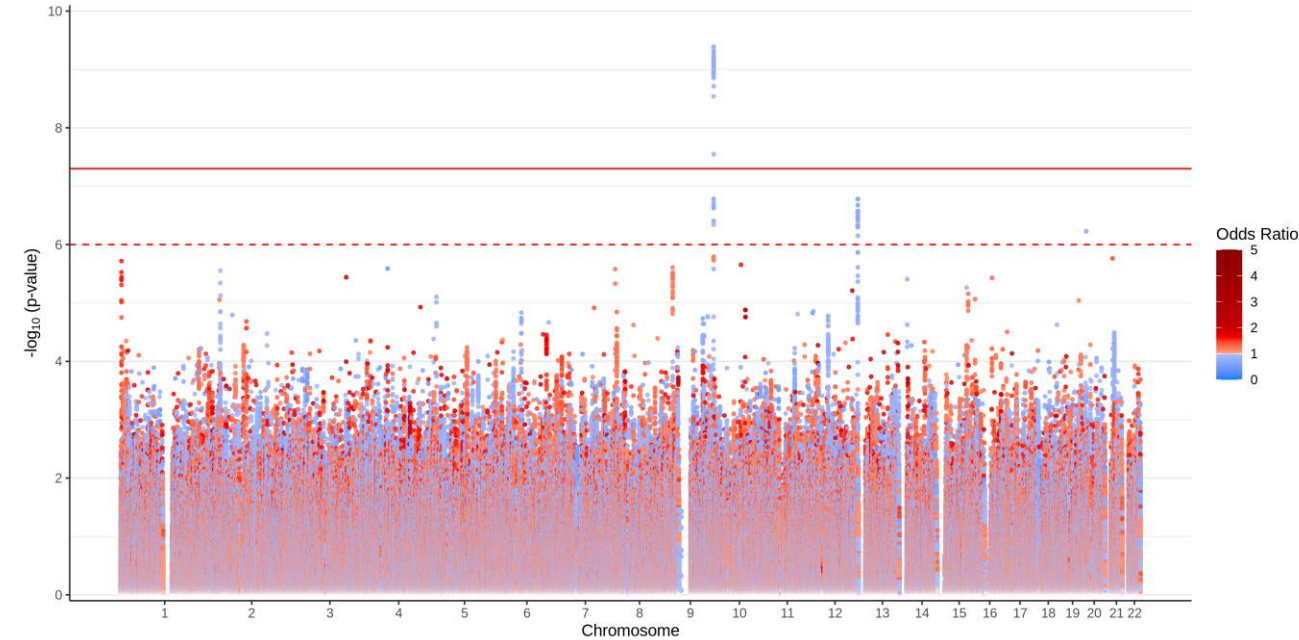
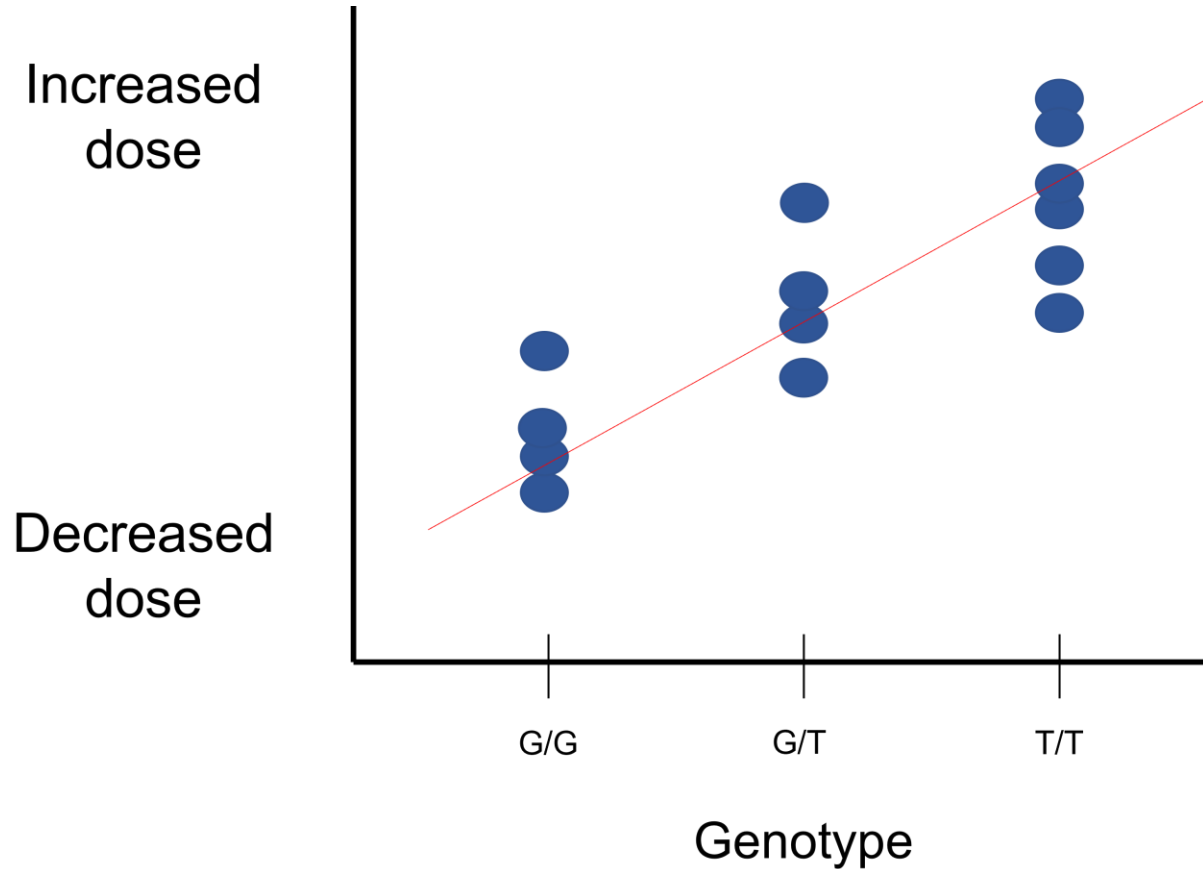
Heparin-induced thrombocytopenia (HIT)

Warfarin

What is the correct stable dose for individuals needing to take warfarin?



GWAS



Do this a million times than plot the p-values to look for a significant signal

Building our models

Phenotype = Genotype and Environment

Also, should be noted that though there may be particular haplotypes that tend to segregate with specific populations, there is vastly more variation **within** populations than **between** populations

