



Hartmut Derendorf, Ph.D.

**The Scientist
The Professor
The Human**

Outline

- Introduction
- The Scientist
 - Contributions to Pharmacology
- The Professor
- The Human

Introduction

- Dr. Derendorf received his B.S. (1976) and Ph.D. (1979, summa cum laude) in Pharmacy from the University of Münster, Germany. He then joined the University of Florida (UF), first as a Postdoctoral Fellow (1981/82) and later (1983) as a faculty member, teaching Biopharmaceutics, Pharmacokinetics and Clinical Pharmacokinetics.
- He expected to stay in Gainesville two years, but he fell in love with UF and met the love of his life, his wife, Kerry, '82. She was pursuing her own Ph.D. in pharmaceutical sciences. They raised two sons, Kevin, BSME '08, (Ph.D. from Washington University in St. Louis) and Karsten, MACC '13, who also went on to graduate from the University of Florida. Hartmut would proudly refer to them as “a Gator family.”

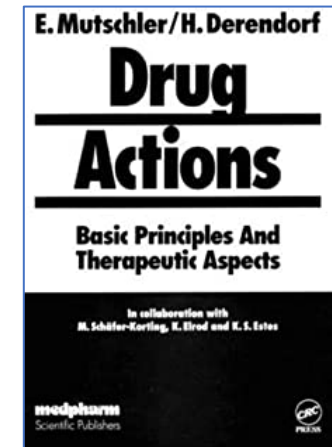
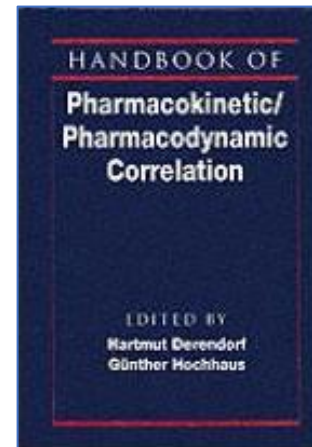
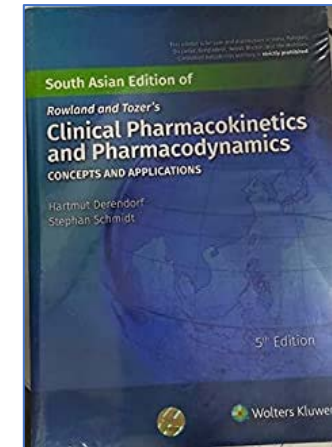
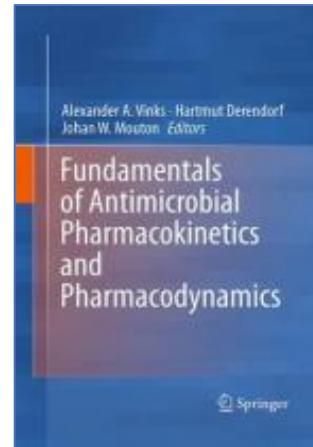
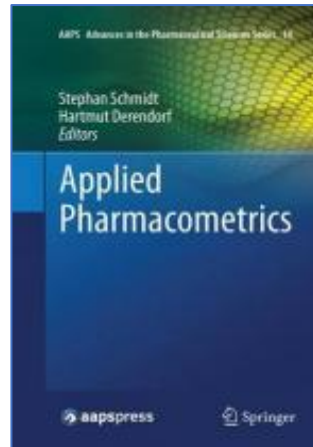
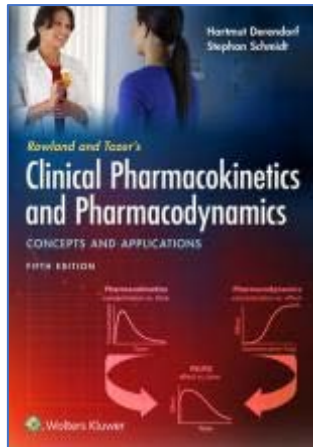
[Meet Dr. Derendorf](#)

- Hartmut was among an elite group of faculty at UF to be awarded the title of Distinguished Professor and spent over three decades serving the college, including more than 25 years as chair of the Department of Pharmaceutics.

The Scientist

- Over 500 publications, with an h-index (Scopus) of 61, over 900 presentations at meetings throughout the world.
- Editor (or Associate Editor) of the Journal of Clinical Pharmacology, International Journal of Clinical Pharmacology & Therapeutics, International Journal of Antimicrobial Agents and Die Pharmazie, and served on the Editorial Board of several other Journals.
- Ten textbooks published in English and German.

Books



The Scientist

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- Editor (or Associate Editor) of the Journal of Clinical Pharmacology, International Journal of Clinical Pharmacology & Therapeutics, International Journal of Antimicrobial Agents and Die Pharmazie, and served on the Editorial Board of several other Journals.
- Ten textbooks in English and German.
- Prof. Derendorf served as President of ACCP (American College of Clinical Pharmacology) in 2006/08 and President of ISAP (International Society of Anti-infective Pharmacology) in 2004/06, and as the PK/PD modeling Chair for ISSX.
- He was a fellow of ACCP and AAPS and a former review panel member of the NASA Human Research Program.
- He also served as an advisor to FDA and an expert consultant to the pharmaceutical industry

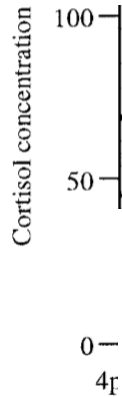
The Scientist

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- He was a fellow of ACCP and AAPS and a former review panel member of the NASA Human Research Program.
- He also served as an advisor to FDA and an expert consultant to the pharmaceutical industry
- His **research interests** included the pharmacokinetics and pharmacodynamics of corticosteroids, analgesics and antibiotics as well as drug interactions.
- One of the fathers of modern pharmacokinetics and pharmacometrics.
- Hartmut was a pioneer for studying tissue concentrations of antibiotics in humans and animals using microdialysis, and held a patent (Issued 2005) for Microdialysis Probes and Methods of Use.

Review

Modeling of Pharmacokinetic/Pharmacodynamic (PK/PD) Relationships: Concepts and Perspectives

Hartmut Derendorf^{1,3} and Bernd Meibohm²



A
Dose (PN)
ELSA

ORIGINAL RESEARCH ARTICLE



Impact of Ethnicity-Specific Hepatic Microsomal Scaling Factor, Liver Weight, and Cytochrome P450 (CYP) 1A2 Content on Physiologically Based Prediction of CYP1A2-Mediated Pharmacokinetics in Young and Elderly Chinese Adults

Johannes Kast^a, Yichao Yu^c, Guo-Fu Li^{1,2,3}, Qing-Shan Zheng³, Yichao Yu², Wei Zhong¹, Hong-Hao Zhou⁴, Furong Qiu⁵, Guangji Wang⁶

> 545 Authored papers	61 H-index	971 Coauthors	15,054 Citations
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A Review

Nonlinear Protein Binding: Not What You Think

Amelia N. Deitchman¹, Ravi Shankar Prasad Singh^{1,2}, Hartmut Derendorf^{1,*}

[Quantification of the attenuation of pain sensation through evoked potentials after the application of mild analgesics (author's translation)] Clin Pharmacol 2001;41:492-499



Ph [Article in German]

Rohdewald P, Derendorf H, Elger CE, Knoll O.

Pharmacokinetic and Pharmacodynamic Changes in Sp

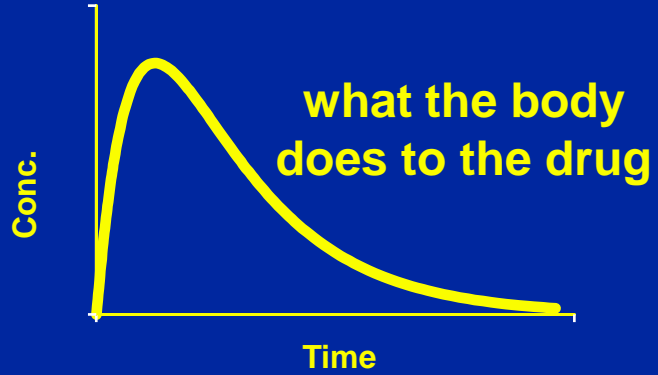
Pharmacokinetics and Bioavailability of Quercetin Glycosides in Humans

Annemarie Graebe, PharmD, Edgar L. Schuck, MSc, Petra Lensing, Lakshmi Putcha, PhD, and Hartmut Derendorf, PhD, FCP

Eva U. Graefe, HPhD, Joerg Wittig, PharmD, Silke Mueller, MD, Anne-Kathrin Riethling, MD, Bernhard Uehleke, MD, Bernd Drewelow, MD, Holger Pforte, MS, Gisela Jacobasch, MD, Hartmut Derendorf, PhD, and Markus Veit, PhD

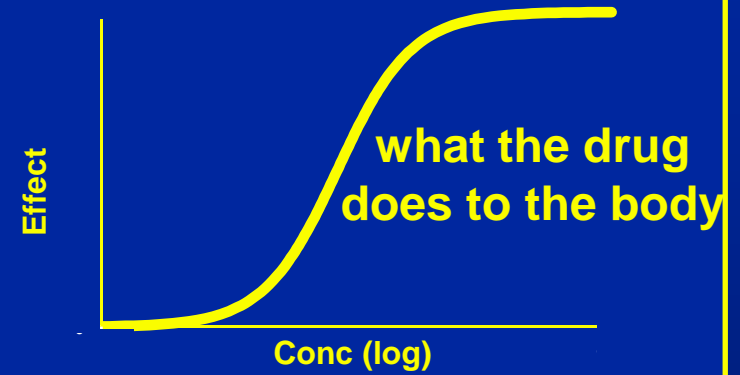
Pharmacokinetics

conc. vs time



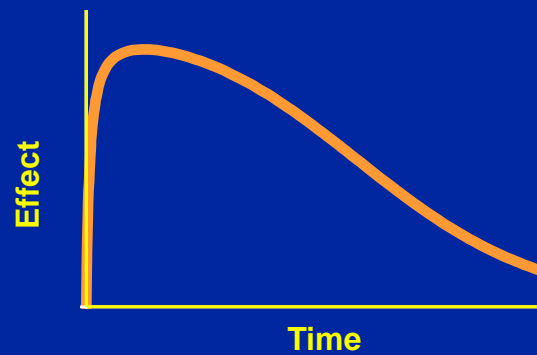
Pharmacodynamics

conc. vs effect



PK/PD

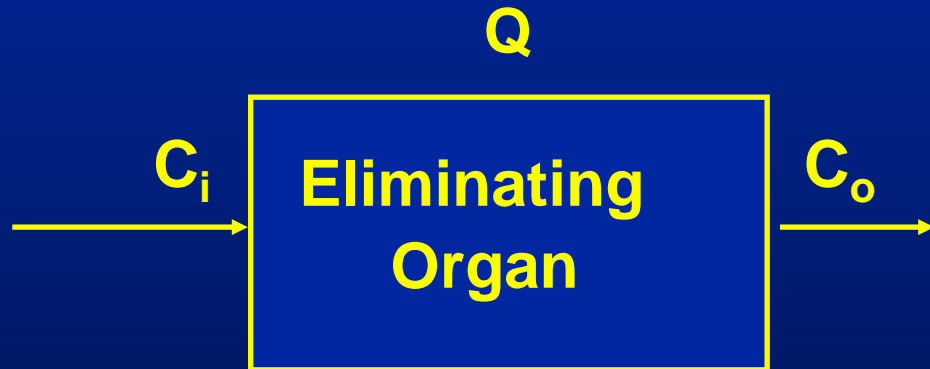
effect vs time



Clearance

Quantifies Elimination

CL is the volume of body fluid cleared per time unit (L/h, mL/min)



$$CL = Q \cdot E$$

Q Blood Flow

E Extraction Ratio

$$E = \frac{C_i - C_o}{C_i}$$

$$CL = Q \cdot E$$

$$CL = \frac{Q \cdot f_u \cdot CL_{int}}{Q + f_u \cdot CL_{int}}$$

Well-stirred
model

High-extraction drugs

Well-stirred
model

$$CL = \frac{Q \cdot f_u \cdot CL_{int}}{Q + f_u \cdot CL_{int}}$$

$$Q \ll f_u \cdot CL_{int}$$

$$CL = Q$$

Low-extraction drugs

$$Q \gg f_u \cdot CL_{int}$$

$$CL = f_u \cdot CL_{int}$$

Volume of Distribution

$$V_d = X / C_p$$

- Quantifies **DISTRIBUTION**
- Relates drug concentration (C_p) to amount of drug in the body (X)
- Gives information on the amount of drug distributed into the tissues

$$\begin{aligned} V_{d,\text{plasma}} &= V_P + \frac{f_{uP}}{f_{uT}} \times V'_T \\ &= V_P + \frac{f_{uB} \times C_B / C_P}{f_{uT}} \times V'_T \end{aligned}$$

Half-Life

Time it takes for the concentration to fall to half of its previous value

$$t_{1/2} = \frac{0.693 \cdot Vd}{CL}$$

$$t_{1/2} = \frac{\ln 2}{k} = \frac{0.693}{k}$$

$$CL = k \cdot Vd$$

Bioavailability (F)

Rate and extent to which an active compound is absorbed from a drug product and becomes available at the site of action

$$F = \frac{AUC_{po}}{AUC_{iv}}$$

- quantifies **ABSORPTION**

F is the fraction of the administered dose that reaches the systemic circulation

Bioavailability

First-Pass Effect

High- and low-extraction drugs, oral administration

$$F = 1 - E = \frac{Q}{Q + f_u \cdot CL_{int}}$$
$$Cp_{ss} = \frac{F \cdot D}{CL \cdot \tau} = \frac{D}{f_u \cdot CL_{int} \cdot \tau}$$
$$Cp_{ss(\text{free})} = \frac{D}{CL_{int} \cdot \tau}$$

High extraction drug
Dependent on protein binding

Low extraction drug
Independent on protein binding

Assumption: Presystemic and systemic extraction ratios are equal

Contributions to Pharmacology Protein Binding

“Free, active concentrations should be measured in the test system instead of correcting for literature protein binding values.”

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, Nov. 2008, p. 3994–4000
0066-4804/08/\$08.00+0 doi:10.1128/AAC.00427-08
Copyright © 2008, American Society for Microbiology. All Rights Reserved.

Vol. 52, No. 11

Effect of Protein Binding on the Pharmacological Activity of Highly Bound Antibiotics[∇]

Stephan Schmidt,¹ Katharina Röck,¹ Martina Sahre,¹ Olaf Burkhardt,^{1,2} Martin Brunner,³ Maximilian T. Lohmeyer,⁴ and Hartmut Derendorf^{1*}

Significance of Protein Binding in Pharmacokinetics and Pharmacodynamics

STEPHAN SCHMIDT,^{1,2} DANIEL GONZALEZ,¹ HARTMUT DERENDORF¹

¹Florida¹; Department of Pulmonary Medicine,
²ogy, Division of Clinical Pharmacokinetics,
³cy Practice, College of Pharmacy,
⁴

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, July 2011, p. 3067–3074
0066-4804/11/\$12.00 doi:10.1128/AAC.01433-10
Copyright © 2011, American Society for Microbiology. All Rights Reserved.

Vol. 55, No. 7

MINIREVIEW

Protein Binding: Do We Ever Learn?[∇]

Markus A. Zeitlinger,¹ Hartmut Derendorf,² Johan W. Mouton,³ Otto Cars,⁴ David Andes,⁵ and Ursula Theuretzbacher^{6*}

LESSONS LEARNED

When is Protein Binding Important?*

JULES HEUBERGER, STEPHAN SCHMIDT, HARTMUT DERENDORF

Department of Pharmaceutics, University of Florida, Gainesville, Florida

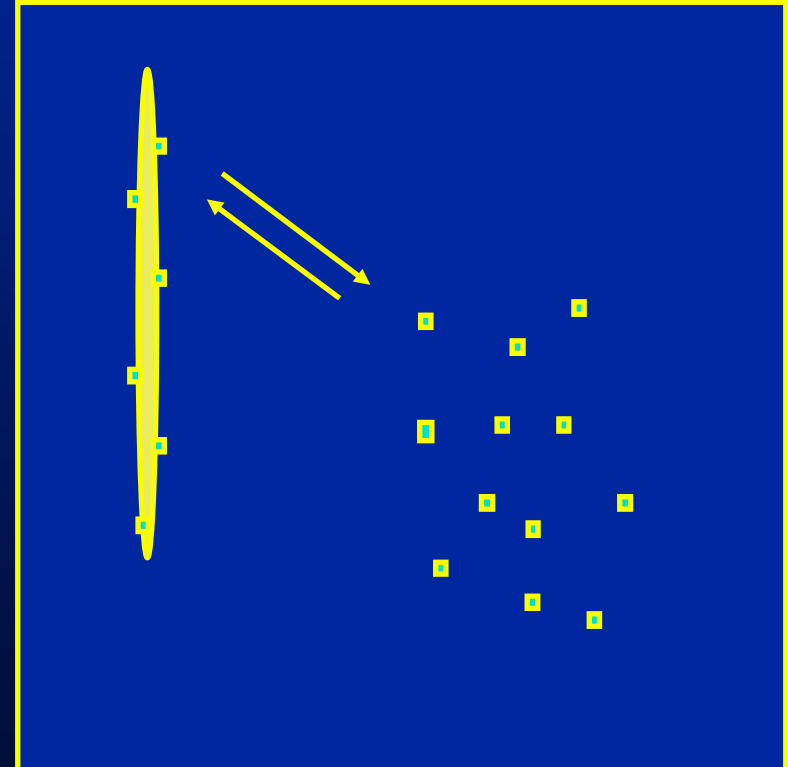
Received 28 February 2013; revised 31 March 2013; accepted 2 April 2013

Published online 6 May 2013 in Wiley Online Library (wileyonlinelibrary.com). DOI 10.1002/jps.23559

Protein Binding

- **reversible** vs. irreversible
- **linear** vs. nonlinear
- **rapid** equilibrium

The free (unbound) concentration of the drug at the receptor site should be used in PK/PD correlations to make predictions for pharmacological activity



Contributions to Pharmacology

Tissue Distribution

European Journal of Pharmaceutical Sciences 136 (2019) 104977



Contents lists available at [ScienceDirect](#)

European Journal of Pharmaceutical Sciences

journal homepage: www.elsevier.com/locate/ejps

Editorial

Valvanera Vozmediano^a, Markus Müller^b, Stephan Schmidt^{a,*}

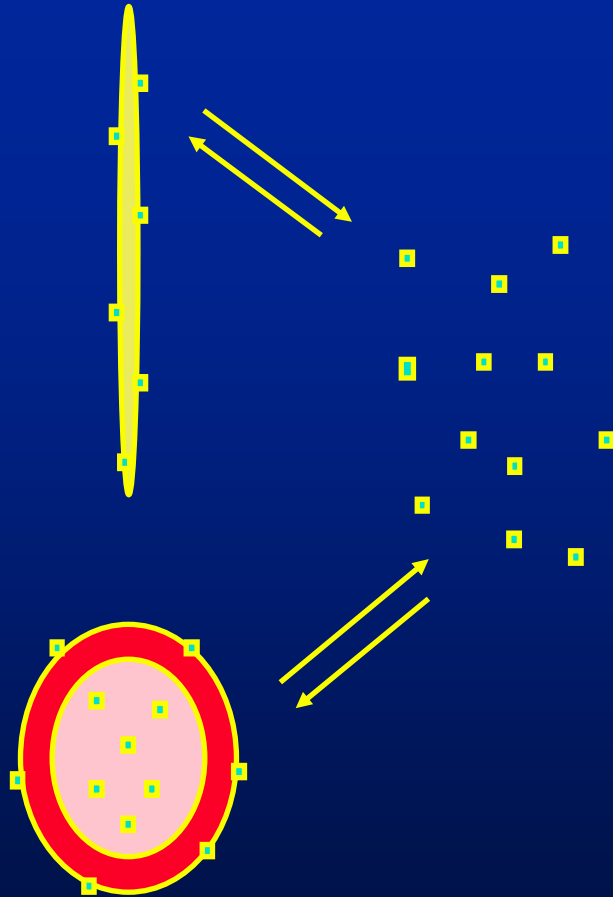
Hartmut Derendorf's work on tissue distribution

“Dr. Derendorf’s work...led to an entirely new understanding of tissue PK principles, with major impact in clinical pharmacology.”

- Early 1980s: Drug concentrations in saliva as a proxy of free tissue concentrations and analgesic efficacy
- Late 80s-90s: Target tissues: joints, brain, and local treatment strategies (pulmonary delivery via inhalation)
- 1990s: Technological breakthrough achieved by adopting microdialysis technique to access unbound concentrations in the tissue interstitial space
- 1990s-2000s:
 - Application of microdialysis to measure free extracellular concentrations at various target sites in combination with a target based pharmacokinetic pharmacodynamic (PK/PD) modeling and simulation in various tissues, in animals and humans
 - Microdialysis for large molecules
 - Regulatory impact

vascular space

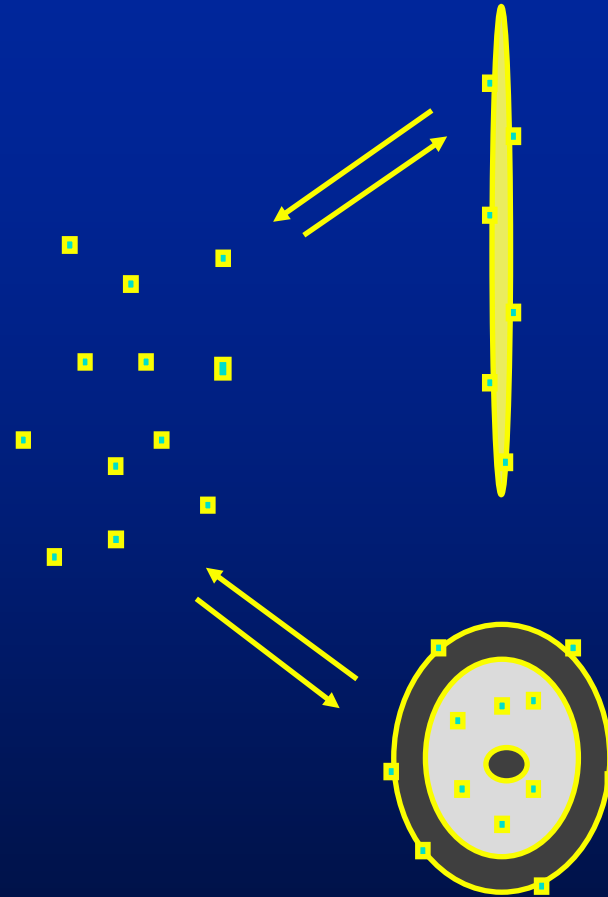
plasma
protein
binding



blood cell
binding,
diffusion into
blood cells,
binding to
intracellular
biological
material

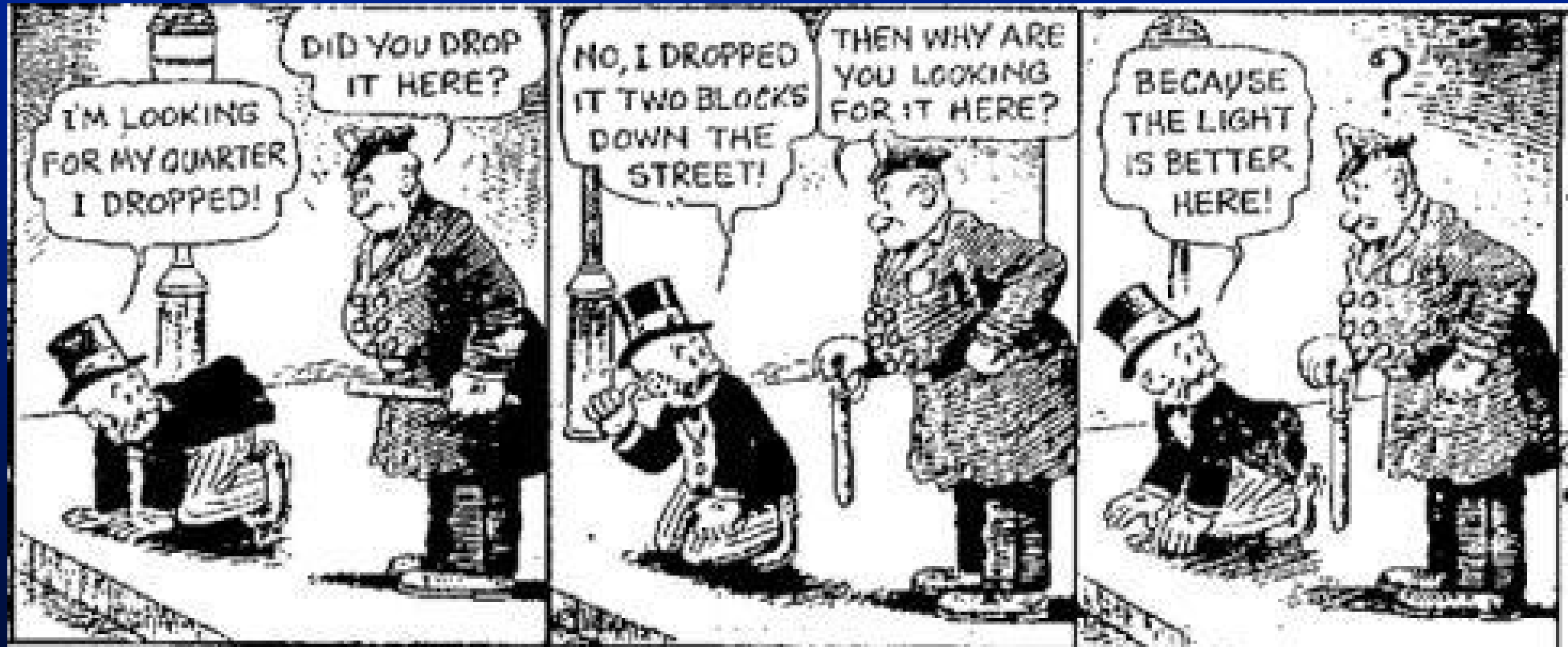
extravascular space

binding to
extracellular
biological
material

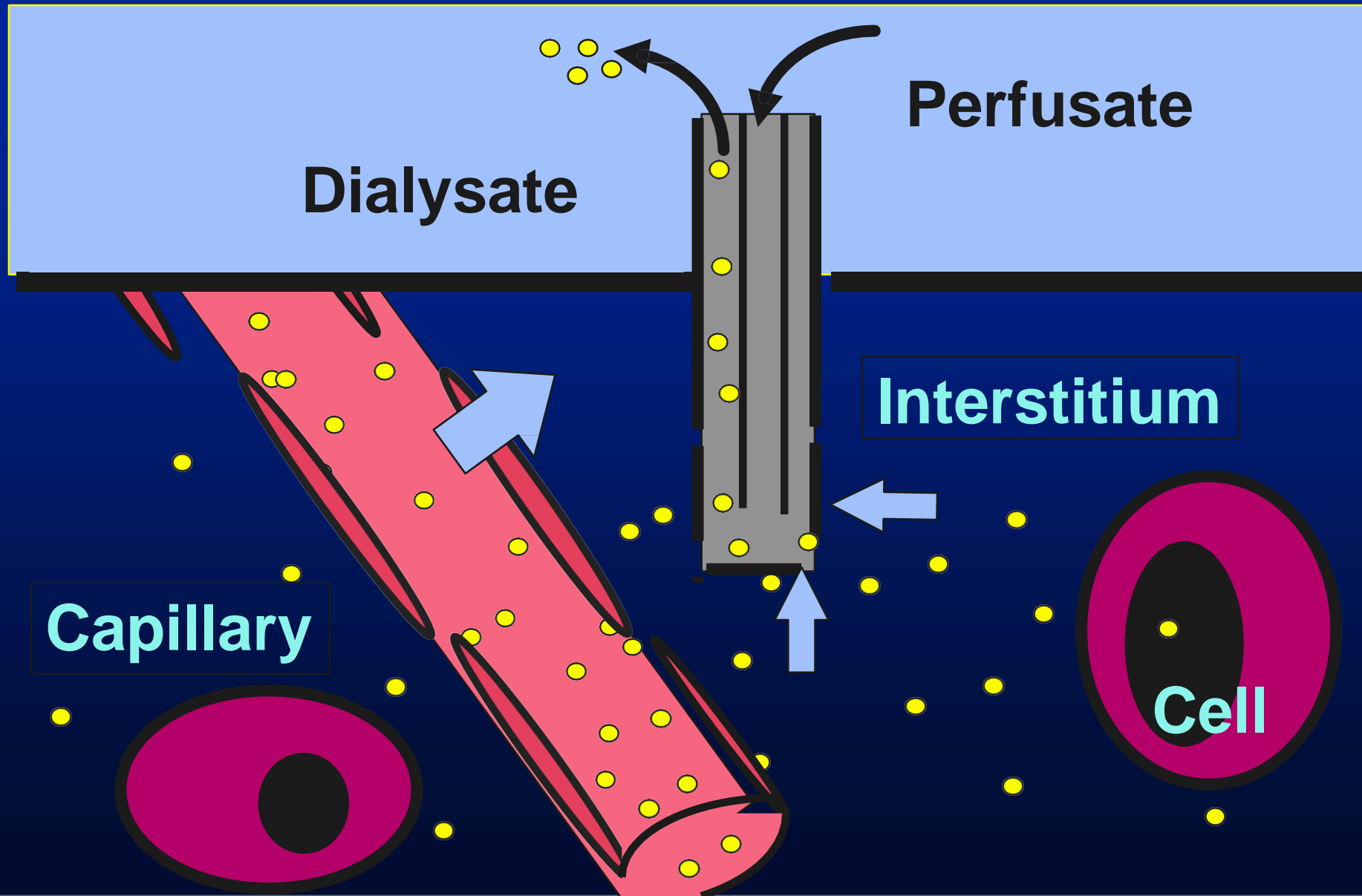


tissue cell
binding,
diffusion into
tissue cells,
binding to
intracellular
biological
material

The Street Light Effect



Microdialysis



Contributions to Pharmacology Microdialysis

ELSEVIER
Advanced Drug Delivery Reviews 45 (2000) 189–216
www.elsevier.com/locate/drugdelrev

Microdialysis in peripheral tissues
Amparo de la Peña, Ping Liu, Hartmut Derendorf*

Pharmaceutical Research, Vol. 24, No. 5, May 2007 (© 2007)
DOI: 10.1007/s11095-006-9206-z

Workshop Report

AAPS-FDA Workshop White Paper: Microdialysis Principles, Application and Regulatory Perspectives

Chandra S. Chaurasia,^{1,21} Markus Müller,² Edward D. Bashaw,³ Eva Benfeldt,⁴ Jan Bolinder,⁵ Ross Bullock,⁶ Peter M. Bungay,⁷ Elizabeth C. M. DeLange,⁸ Hartmut Derendorf,⁹ William F. Elmquist,¹⁰ Margareta Hammarlund-Udenaes,¹¹ Christian Joukhadar,² Dean L. Kellogg Jr.,¹² Craig E. Lunte,¹³ Carl Henrik Nordstrom,¹⁴ Hans Rollema,¹⁵ Ronald J. Sawchuk,¹⁰ Belinda W. Y. Cheung,¹⁰ Vinod P. Shah,¹⁶ Lars Stahle,¹⁷ Urban Ungerstedt,¹⁸ Devin F. Welty,¹⁹ and Heler...

“Microdialysis has opened the door for the experimental measurement of extracellular drug concentrations, both in humans and in animals.”

Clin Pharmacokinet (2014) 53:205–212
DOI 10.1007/s40262-014-0131-8

REVIEW ARTICLE

Role of Microdialysis in Pharmacokinetics and Pharmacodynamics: Current Status and Future Perspectives

Francine Johansson Azeredo · Teresa Dalla Costa · Hartmut Derendorf

Pharmacokinetic-pharmacodynamic modeling of cefpodoxime proxetil in plasma and interstitial fluid of rat

Ping Liu^a, Ken...

Patent for Microdialysis probes and methods of use

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 January 2003 (03.01.2003)

(10) International Publication Number
WO 2003/000129 A3

PCT

J Clin Pharmacol 1997;37:1108–1113 PHARMACOKINETICS AND PHARMACODYNAMICS

Relationship Between Serum and Free Interstitial Concentrations of Cefodime and Cefpirome in Muscle and Subcutaneous Adipose Tissue of Healthy Volunteers Measured by Microdialysis

Markus Müller, MD, Beate Rohde, MD, Andreas Kovar, PhD, Apostolos Georgopoulos, MD, PhD, Hans-Georg Eichler, MD, PhD, and Hartmut Derendorf, PhD, FCP

Journal of Pharmaceutical Sciences
journal homepage: www.jpharmsci.org

Pharmacokinetics, Pharmacodynamics and Drug Transport and Metabolism

Intracellular Distribution of a Therapeutic Monoclonal Antibody Determined by Large Pore Microdialysis

Satyawan B. Jadhav¹, Vipada Khaowroongrueng¹, Matthias Fueth², Michael B. Otteneider², Wolfgang Richter², Hartmut Derendorf^{1,*}

Journal of Pharmaceutical Sciences 105 (2016) 3233–3242

Contents lists available at ScienceDirect

Journal of Pharmaceutical Sciences

journal homepage: www.jpharmsci.org

Large Molecules

Satyawan B. Jadhav, Vipada Khaowroongrueng, Hartmut Derendorf*

International Journal of Antimicrobial Agents
journal homepage: http://www.elsevier.com/locate/ijantimicag

Microdialysis in Drug Development

aapress Springer

April Barbour^{a,1}, Stephan Schmidt^{a,1}, W. Robert Rout^b, Kfir Ben-David^b, Olaf Burkhardt^c, Hartmut Derendorf^{a,*}

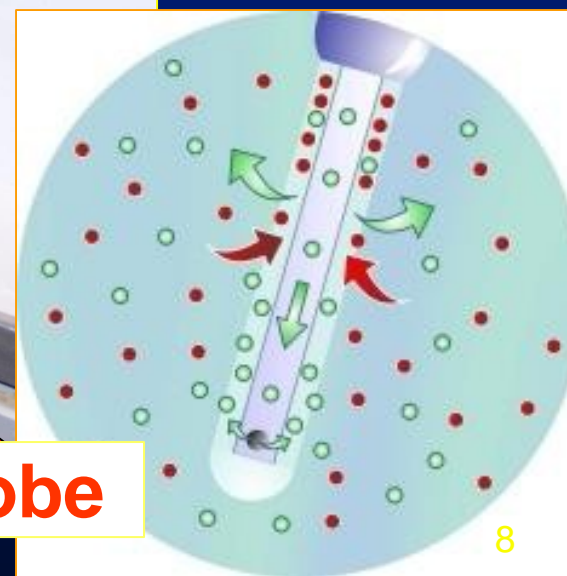
In Vitro Microdialysis

Syringe pump

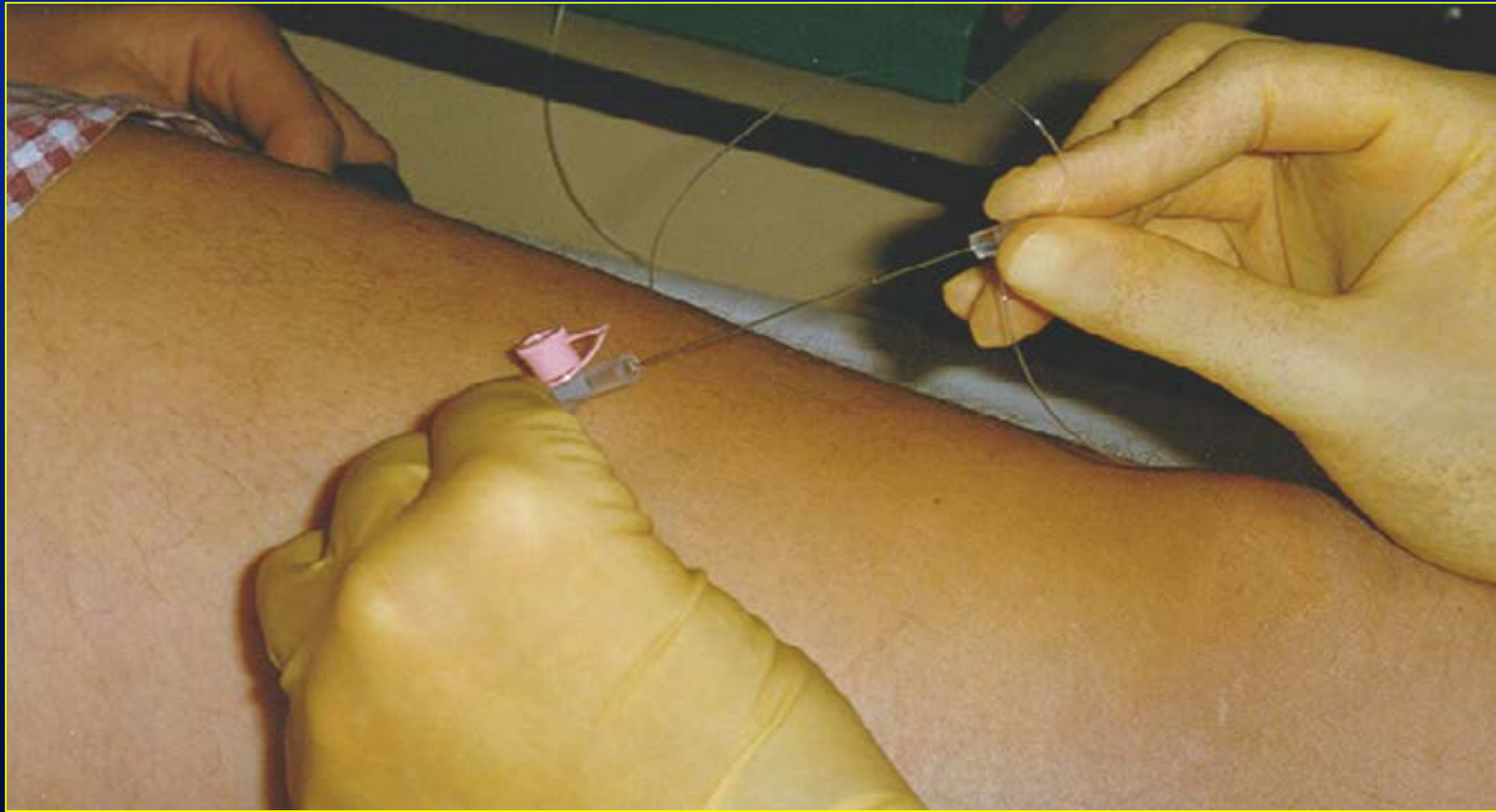
Sample vial

Magnetic heating stirrer

Probe



Microdialysis



Contributions to Pharmacology: PK/PD modeling for Rational Dose Selection

“Refinement of dosages and dosing schedules will benefit from a PK/PD modeling approach”

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, Feb. 2004, p. 369–377
1066-4804/04/\$08.00+0 DOI: 10.1128/AAC.48.2.369–377.2004
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Vol. 48, No. 2

MINIREVIEW

Issues in Pharmacokinetics and Pharmacodynamics of Anti-Infective Agents: Kill Curves versus MIC

Markus Mueller,^{1,2} Amparo de la Peña,¹ and Hartmut Derendorf¹

Antimicrobial Agents and Chemotherapy p. 678–686 February 2014 Volume 58 Number 2

Population Pharmacokinetic Modeling of the Unbound Levofloxacin Concentrations in Rat Plasma and Prostate Tissue Measured by Microdialysis

Felipe K. Hurtado,^a Benjamin Weber,^b Hartmut Derendorf,^b Guenther Hochhaus,^b Teresa Dalla Costa^a

Review

Modeling of Pharmacokinetic/Pharmacodynamic Relationships: Concepts and Perspectives

INTERNATIONAL JOURNAL OF
**Antimicrobial
Agents**
www.ischemo.org

J Clin Pharmacol 2000;40:1399-1418

SYMPOSIUM

Pharmacokinetic/Pharmacodynamic Modeling in Drug Research and Development

Hartmut Derendorf, PhD, Lawrence J. Lesko, PhD, Philip Chaikin, MD, PharmD, Wayne A. Colburn, PhD, Peter Lee, PhD, Raymond Miller, PhD, Robert Powell, PharmD, Gerald Rhodes, PhD, Donald Stanski, MD, and Jürgen Venitz, MD, PhD

PK–PD modelling of the effect of cefaclor on four different bacterial strains

Amparo de la Peña^{a,1} Annema
AAPS Pharmsci 2000; 2(3) article 2

An Interactive Algorithm for the Assessment of Corticosteroid Suppression During Inhaled Corticosteroid Therapy

Submitted March 23, 2000; accepted July 3, 2000; published July 2000
Sriram Krishnaswami, Guenther Hochhaus, and Hartmut Derendorf

CLINICAL PHARMACOLOGY & THERAPEUTICS
VOLUME 68, NUMBER 6

Pharmacokinetic and pharmacodynamic modeling of cetorelix, an LH-RH antagonist, after subcutaneous administration in healthy premenopausal women

Nelamangala V. Nagaraja, PhD, Birgit Pechstein, PhD, Katharina Erb, MD, Christine Klipping, MD, Robert Hermann, MD, Georg Niebch, PhD, and Hartmut Derendorf, PhD Gainesville, Fla, Frankfurt am Main, Germany, and Nijmegen, The Netherlands

MIC

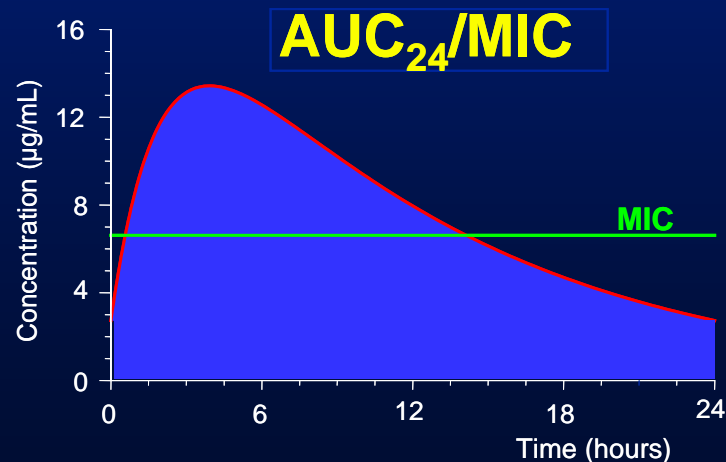
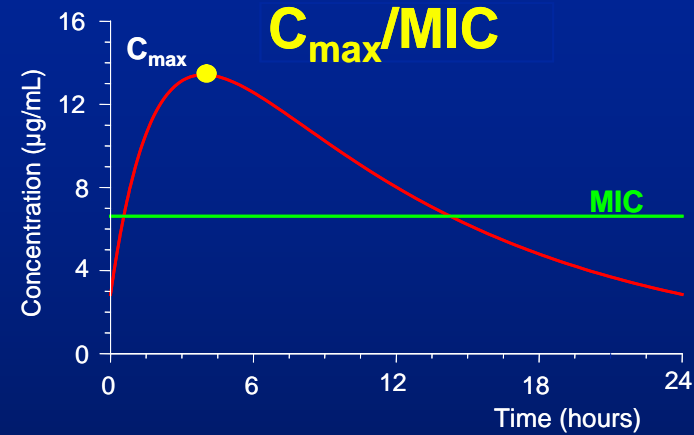
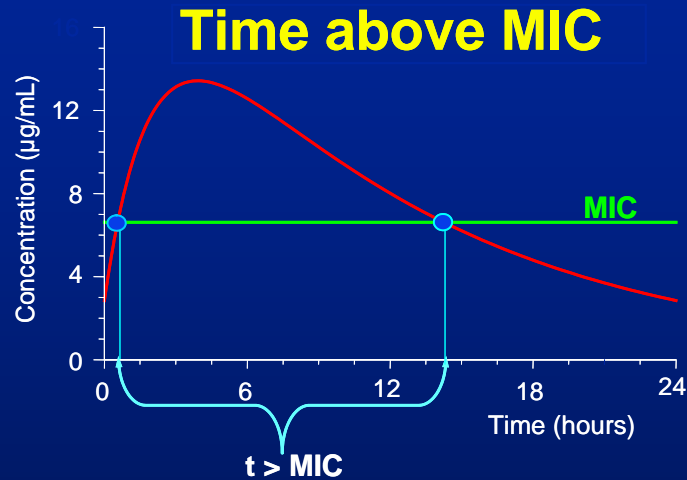
The Current Paradigm

MIC is poison for the mind.

H. Mattie (1994), after a long after-dinner discussion

Why MIC is poison for the mind

Why Target Site Concentrations-Based Kill Curves are Better Predictors than MIC-based PK/PD Indices



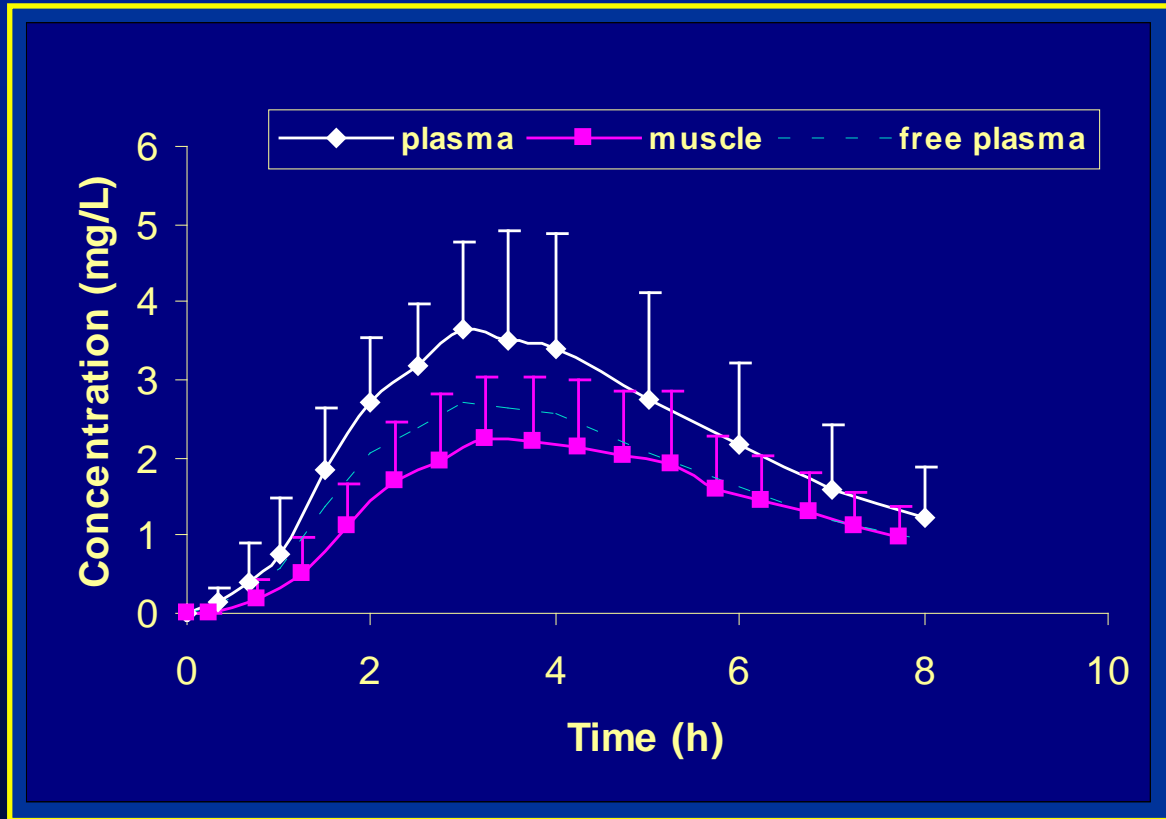
PK

PD

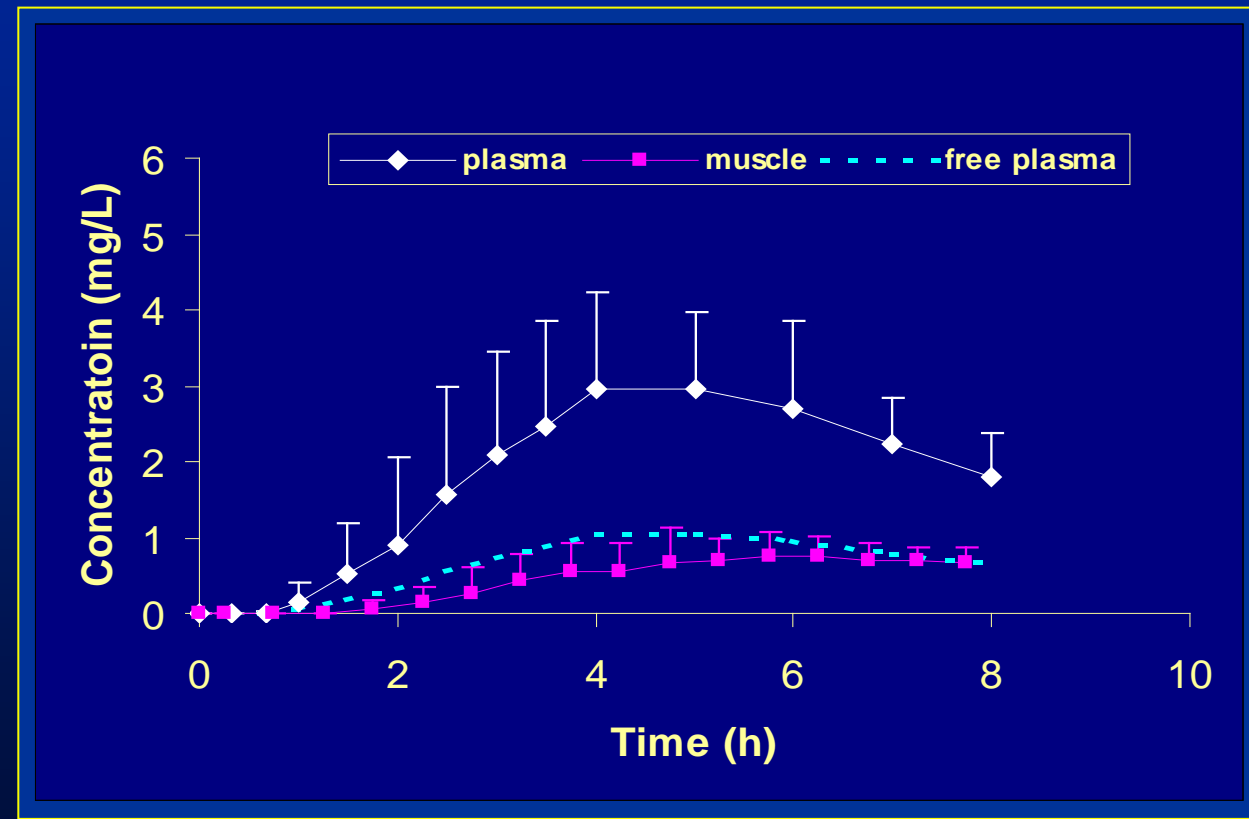
Serum

MIC

Cefpodoxime PK (400 mg oral dose, n = 6)



Cefixime PK (400 mg oral dose, n = 6)



Mean \pm SD

Kill Curves



Unbound Tissue Concentrations

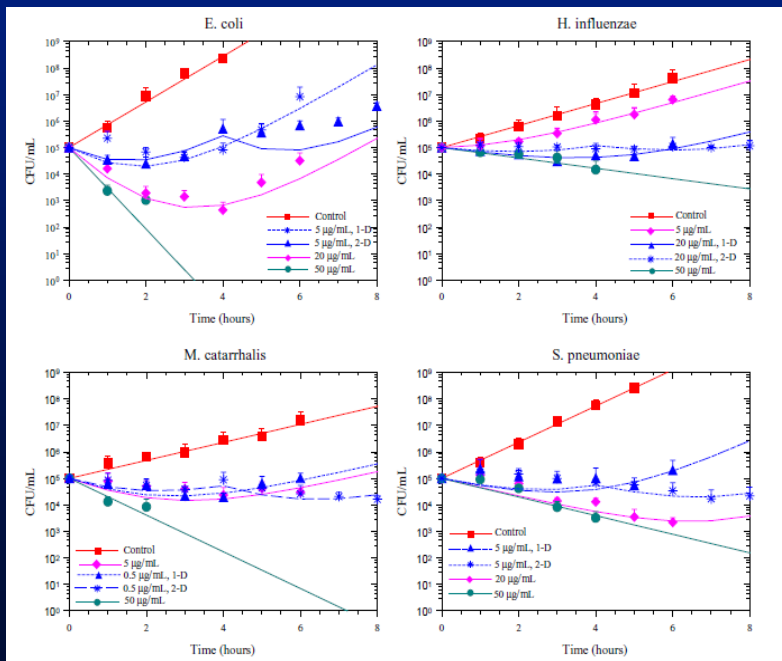
Immediate Release

$$C_T = \frac{Ff_u f D k_{am}}{(k_{am} - k_e) V d} (e^{-k_e(t-t_{lag})} - e^{-k_{am}(t-t_{lag})})$$

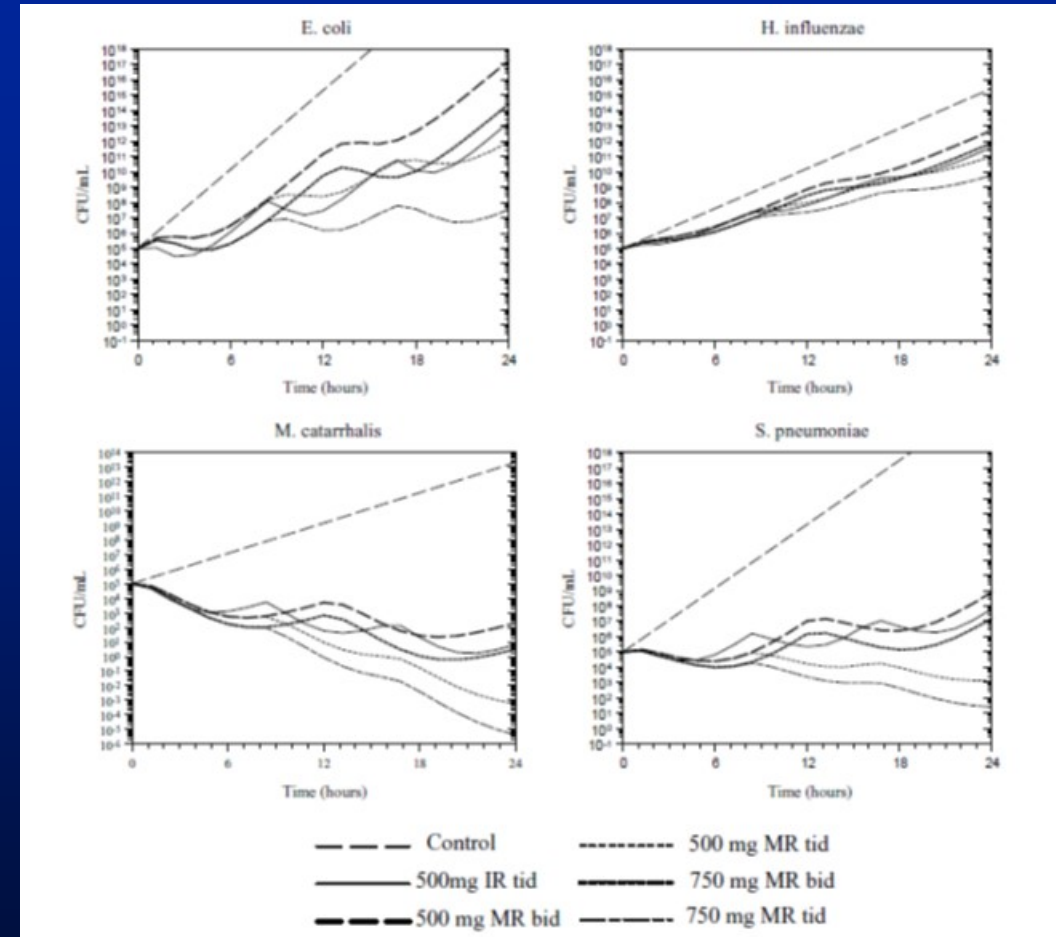
Modified Release

$$C_T = \frac{X_T f_u F}{V d_{35} - V_c}$$

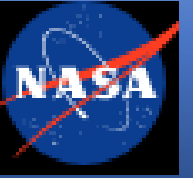
Time-kill curves



PK/PD Simulations



Contributions to Pharmacology NASA Human Research Program



“The interest of the scientific and medical community in space keeps growing, and the technology is there. It is time to harness space for identifying new drug targets, generate novel formulations, and even produce drugs in space.”

J Clin Pharmacol 2005;45:822-831

Effect of Simulated Microgravity on the Disposition and Tissue Penetration of Ciprofloxacin in Healthy Volunteers

Edgar L. Schuck, PhD, Maria Grant, MD, and Hartmut Derendorf, PhD, FCP



Pharm Res (2019) 36: 148
https://doi.org/10.1007/s11095-019-2679-3

Check for updates

EXPERT REVIEW

Medications in Space: In Search of a Pharmacologist's Guide to the Galaxy

Sara Eyal¹ • Hartmut Derendorf²

Pharm Res (2020) 37: 62
https://doi.org/10.1007/s11095-020-02788-x

EDITORIAL

One Giant Leap for Pharmacology

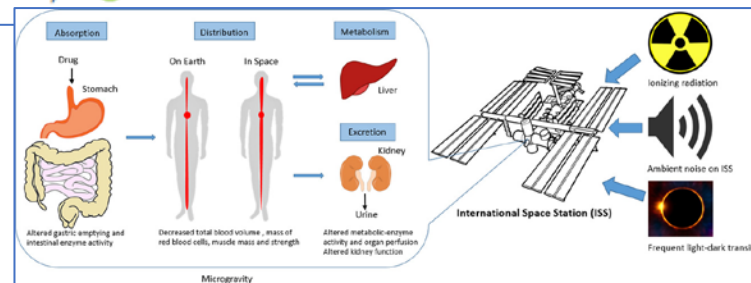
Sara Eyal¹ • Hartmut Derendorf²

J Clin Pharmacol 2004;44:837-853

SPECIAL REVIEW

Physiological, Pharmacokinetic, and Pharmacodynamic Changes in Space

Annemarie Graebe, PharmD, Edgar L. Schuck, MSc, Petra Lensing, Lakshmi Putcha, PhD, and Hartmut Derendorf, PhD, FCP



European Journal of Pharmaceutical Sciences
Volume 109, Supplement, 15 November 2017, Pages S2-S8

Mini-review

Drugs in space: Pharmacokinetics and pharmacodynamics in astronauts

Johannes Kast¹, Yichao Yu², Christoph N. Seubert³, Virginia E. Wotring^{1,4}, Hartmut Derendorf⁵

The Professor

- Mentored over 70 graduate students and 40 postdoctoral fellows from several different countries.
- **Teaching awards:** UF Teaching Improvement Award, HHMI Distinguished Mentorship Award, UF Research Foundation Professorship, CVS Pharmacy Endowed Professorship, International Educator of the Year Award and UF Doctoral Advisor/Mentoring Award.
- UF Alumni Association's 18th Distinguished Alumni Professor (2015)
- More than 900 national and international presentations.
- Established the Global Gators Symposium in 1997.

The Professor



Global Gators Düsseldorf 2017

Pitfalls in Drug Development or... Don't Judge Too Quickly!

The earlier t_{\max} , the faster the absorption

International Journal of Clinical Pharmacology and Therapeutics, Vol. 43 – No. 3/2005 (117-122)

Interpretation of absorption rate data for
inhaled fluticasone propionate obtained in
compartmental pharmacokinetic modeling

S. Krishnaswami^{1,2}, G. Hochhaus¹, H. Möllmann³, J. Barth⁴ and H. Derendorf¹

¹Department of Pharmaceutics, College of Pharmacy, University of Florida,
Gainesville, FL, ²Pfizer Global R&D, Ann Arbor, MI, USA,

³University of Bochum and ⁴Clinic Bergmannstrost, Halle, Germany

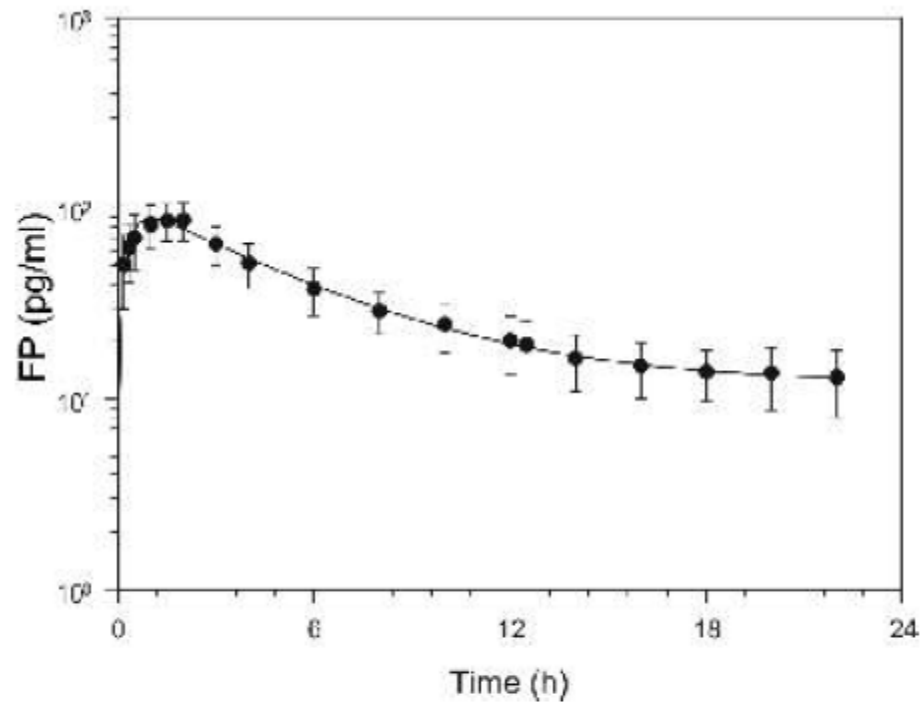


Figure 1a. Serum concentration-time profile of FP after a single dose of 500 µg inhaled via the Diskus® dry-powder device. The closed circles represent experimental data (mean of n = 14, SD) and the solid line represents the fitted concentrations based on a two-compartment body model with first order absorption.

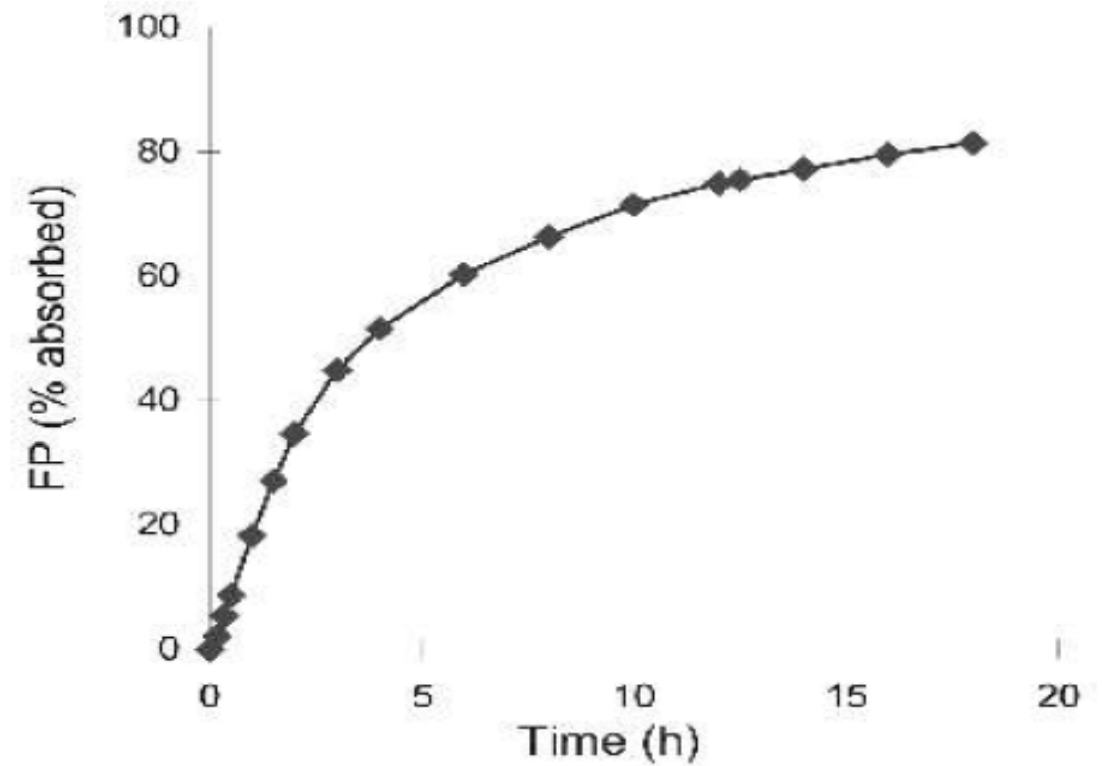


Figure 2. Absorption profile of FP after a single inhalation of 500 µg via the Diskus® dry-powder device, as determined using the Loo-Riegelman method. The profile is based on a three-compartment disposition model after i.v. administration. Calculations were based on average parameters obtained after i.v. administration of 1000 µg [Mackie et al. 1996] and median inhalation data obtained in the present study.

Absorption half-life 4h

Don't Judge Too Quickly



[Link to video: Don't Judge Too Quickly #1](#)

Pitfalls in Drug Development or... Don't Judge Too Quickly!

Drug-Drug Interactions Due to Protein Binding Displacement Are Common

This effect of protein binding is most significant with drugs that are highly protein-bound (>95%) and have a low therapeutic index, such as warfarin. A low therapeutic index indicates that there is a high risk of toxicity when using the drug. Since warfarin is an anticoagulant with a low therapeutic index, warfarin may cause bleeding if the correct degree of pharmacologic effect is not maintained. If a patient on warfarin takes another drug that displaces warfarin from plasma protein, such as a sulfonamide antibiotic, it could result in an increased risk of bleeding.

Warfarin-Phenylbutazone

1+1=2 ?

- 1 Phenylbutazone decreases warfarin plasma protein binding, increasing warfarin's unbound fraction.
- 1 When co-administered, phenylbutazone causes bleeding in otherwise well-controlled patients on warfarin. This is clearly a clinically relevant drug interaction.
- 1+1 The mechanism of the phenylbutazone-warfarin drug interaction is displacement of warfarin from plasma proteins, leading to increased unbound warfarin concentrations.

Is this true ?

Hint: Warfarin is a low-extraction drug

Warfarin-Phenylbutazone

A change in protein binding for a low-extraction drug changes the **fraction unbound** by a change in the **total** concentration. The **unbound** concentration, and therefore the pharmacological effect, do not change significantly.

Hence, displacement from protein binding sites cannot explain this interaction.

There is something else going on: Phenylbutazone inhibits warfarin metabolism, decreasing intrinsic clearance.

Enzyme inhibition is the mechanism for the clinically observed drug interaction between warfarin and phenylbutazone

Don't Judge Too Quickly

[Link to video: Don't Judge Too Quickly #2](#)

Right on target



[Link to video: Right on Target](#)

The Human

- Teacher, Mentor, Colleague, Friend
- Citizen of the world
- Avid traveler
- Inclusive and welcoming
- Family Man
- Soccer Fan
- Music lover
- Car aficionado



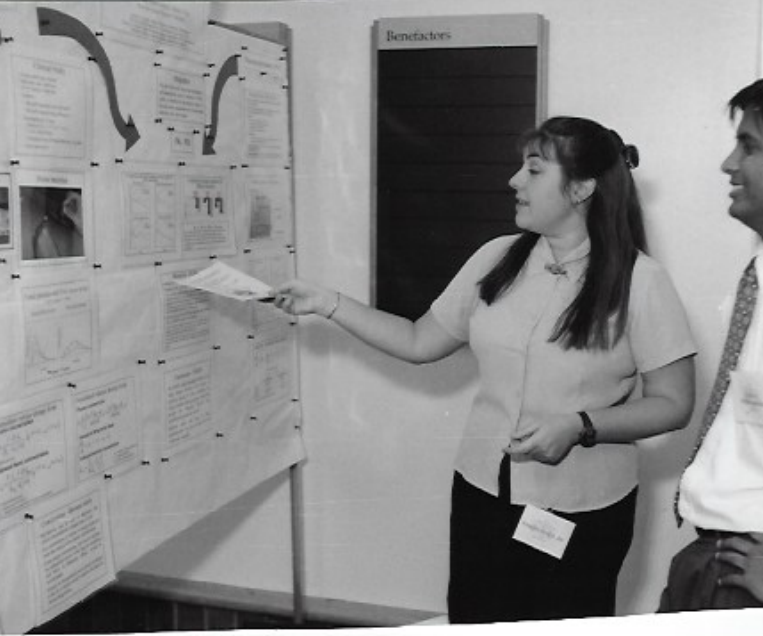
**Dr. Derendorf's Pearls of Wisdom,
never expressed in words... all by example!**



A Pharmacokinetic-Pharmacodynamic First- and Last-Generation Model to Characterize Circadian Variations and Non-linear Binding of Endogenous Gatorsol and Circulating Gainesvilocytes Using Microdialysis During Space Travel

Hartmut Derendorf, PhD
University of Florida

1. Be a learner, always...



2. Work hard to create safe spaces for risk taking !



3. Build Networks

Collaborative problem solving is the only way!



4. Take your work seriously



But not yourself....

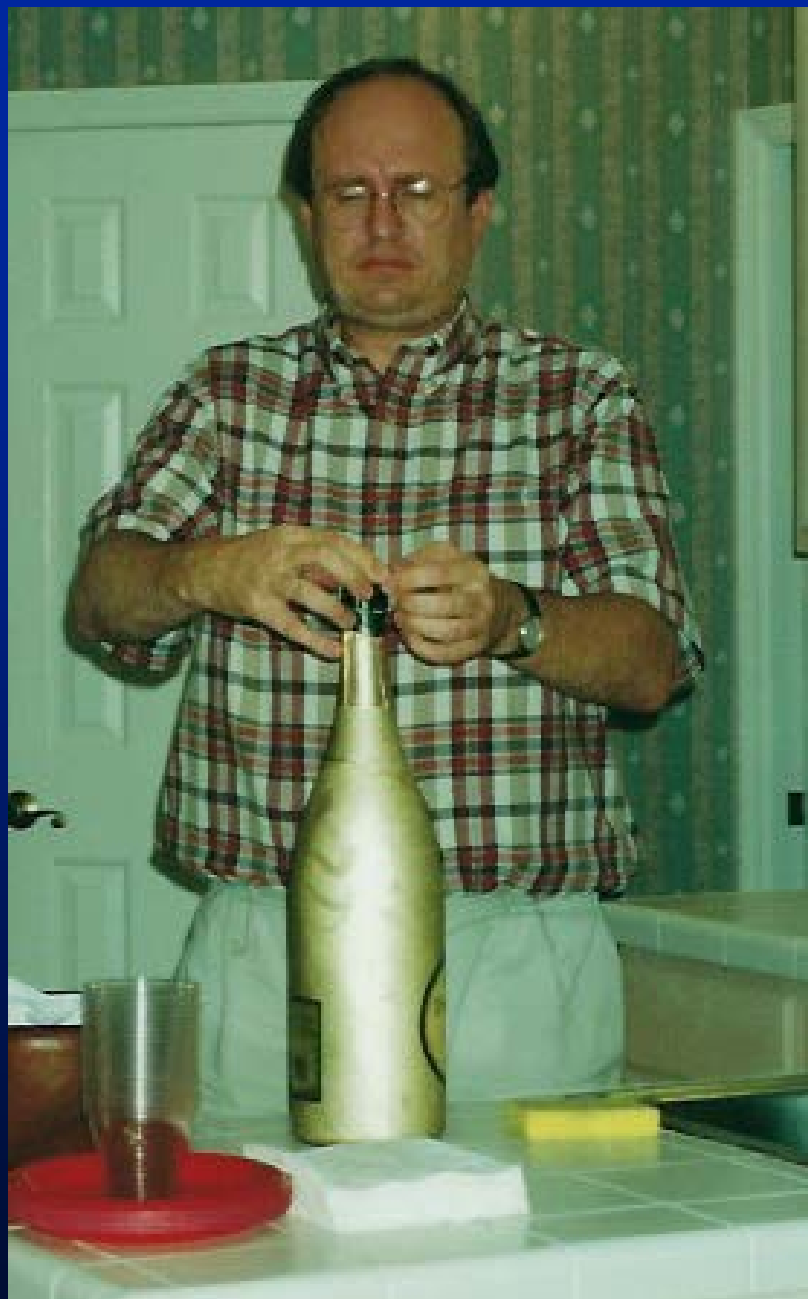
5. Welcome Everyone



6. Care – Be available over the long haul



7. There is
no problem
too big !





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