INFOSYS 296A-2: Open Source Development And Distribution of Digital Information Nov. 14, 2005

Adapting the Open Source Concept to Biotech Innovations

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CO BLAE LURISHIMAL	Introduction
Complex	nu of Incentives Inventions on Goods
Rhetoric Where T What Mig	ource Biology" Idea hings Stand ght Be Possible ght Be Useful

CO KULE FERINKI (KA	An I ntelligent. Rational Design Approach
Showstoppers	
What Do We Know About OS Software?	
What Do We Know About Drug Discovery?	
Candidates	
Mechanics	

(20) BLAS HER BLACK	Showstoppers
Main Objection: Developing Drugs is C	ostly
Other Objections: Competition With Pate Researcher Incentives Scientific Feasibility Copyright <i>vs.</i> Patents	

in and a second	What Do We Know About OS Software?
Incentives	
Ideology	
Education and Sig	gnaling
Own-Use For Hobbies For Work For Employe	
Complementary C Standards Wars	Goods & Services

(∰) MLEFLUTENIMIKU	What Do We Know About OS Software?
Advantages (Donated Labo Price of Inform No Agency Pro	nation
Disadvantages Inadequate Ind	centives?

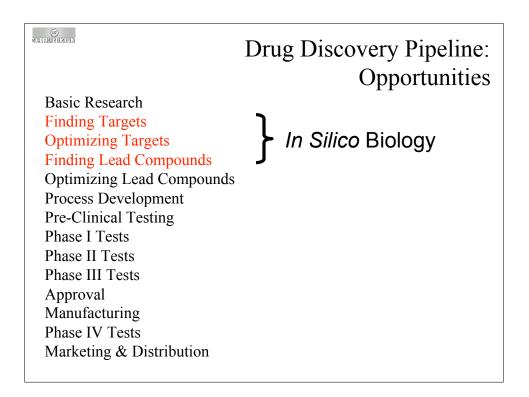
Drug Discovery Pipeline: Opportunities

Basic Research Finding Targets Optimizing Targets Finding Lead Compounds Optimizing Lead Compounds Process Development Pre-Clinical Testing Phase I Tests Phase II Tests Phase III Tests Phase III Tests Approval Manufacturing Phase IV Tests Marketing & Distribution

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	ig Discovery Pipeline:
	Opportunities
Basic Research } Open Scier	nce
Finding Targets	
Optimizing Targets	
Finding Lead Compounds	
Optimizing Lead Compounds	
Process Development	
Pre-Clinical Testing	
Phase I Tests	
Phase II Tests	
Phase III Tests	
Approval	
Manufacturing	
Phase IV Tests	
Marketing & Distribution	

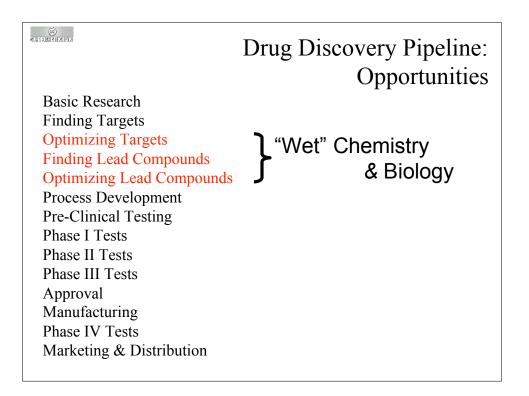
Examples BioPERL HGP, SNP Consortiu	Opportunities: Open Science ım, HapMap, AfCS.
Traditional Academic Incentives Signaling, Own-Use, Ideology, Education.	
Showstoppers Physics Precedents Big Science (<i>cf.</i> AfCS) Virtual Experiments (PDG, TOI)	
Is It Open Source? HapMap License	



	Opportunities: <i>In Silico</i> Biology
Example Tropical Disease Initiati	ve
Basic Argument DNA ~ Software Disease ~ Bugs Drugs ~ Patches	
Collaboration Mechanics On-Line Forums for Eac Using Databases to Do Philosopher Kings	_

ing and a second	Opportunities: <i>In Silico</i> Biology
Incentives Education, Signaling, Io	deology
Advantages Donated Labor Lower R&D Costs The SNP Consort Lower Manufacturing C Transparency	

(a) NATESTRINESTRIA	Opportunities: <i>In Silico</i> Biology
Showstoppers Competition With Pate Social & Scientific Do	
Would it Work for Rich Nation Diseases? Competition With Patents Inadequate Incentives?	
BIOS/Bioforge	



C STATE LANS HER ALL	Opportunities: Wet Chemistry & Biology
Examples Tropical Disease Initiat Yochai Benkler Propos	
Incentives & Advantages ~ What are the Limits?	In Silico Discovery
Is Funded Open Source an Big Science Grants	Oxymoron?

CC) SIMEERINGUSERII	Drug Discovery Pipeline:
	Opportunities
Basic Research	
Finding Targets	
Optimizing Targets	
Finding Lead Compounds	
Optimizing Lead Compounds	
Process Development	
Pre-Clinical Testing	
Phase I Tests	
Phase II Tests	
Phase III Tests	
Approval	
Manufacturing	
Phase IV Tests } Off Lat	pel Testing
Marketing & Distribution	5
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CO STATE LANSING AND A DESCRIPTION OF A	Opportunities: Off-Label Testing
Examples Von Hippel Proposal	
Incentives Ideology, Education, Signaling	
Feasibility Costs are Already Paid For Competition With Patents	
Advantages Transparency	

CO C	Drug Discovery Pipeline: Opportunities
Basic Research	
Finding Targets	
Optimizing Targets	
Finding Lead Compounds	
Optimizing Lead Compounds	
Process Development	
Pre-Clinical Testing	
Phase I Tests Phase II Tests Phase III Tests Approval Manufacturing Phase IV Tests Marketing & Distribution	ical Testing

Examples (None)	Opportunities: Clinical Testing
Incentives	
Ideology, Education, Sig	naling
Complementary Goods	lainig,
Complementary Coods	
Feasibility	
Patents Support OS	
Advantages	
Transparency	
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SURF FIRING REAL	Opportunities: Synthetic Biology	
Making DNA to Order Standardized Parts	s?	
Incentives: Own Use, Education, Signaling Complementary Goods Standards Wars		
Advantages: Open Standards and Competition Antitrust National Security		

