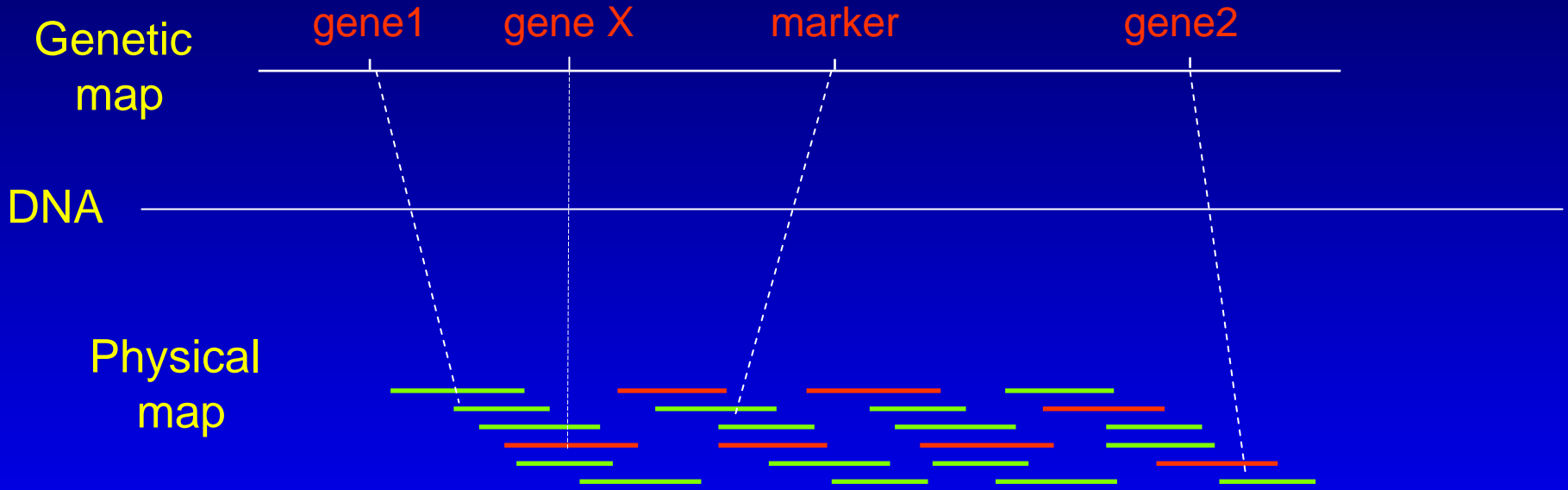


Access to knowledge

- Basis for advancement
 - Understanding
 - R&D
 - material production
- Basis for justice and trust
 - Judgement of worth
 - Evaluation of harm
 - Empowers independent experts

A GENOME MAP



INTERNATIONAL AGREEMENT ON DATA RELEASE

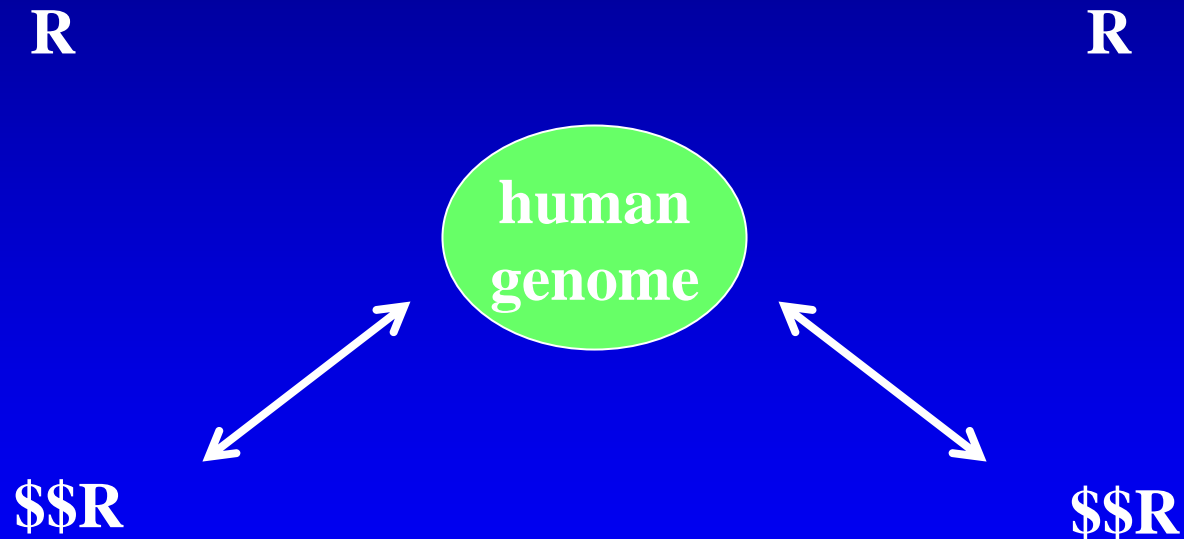
“All human genomic sequence information should be freely available and in the public domain in order to encourage research and development and to maximise its benefit to society.”

The Bermuda Statement, February 1996

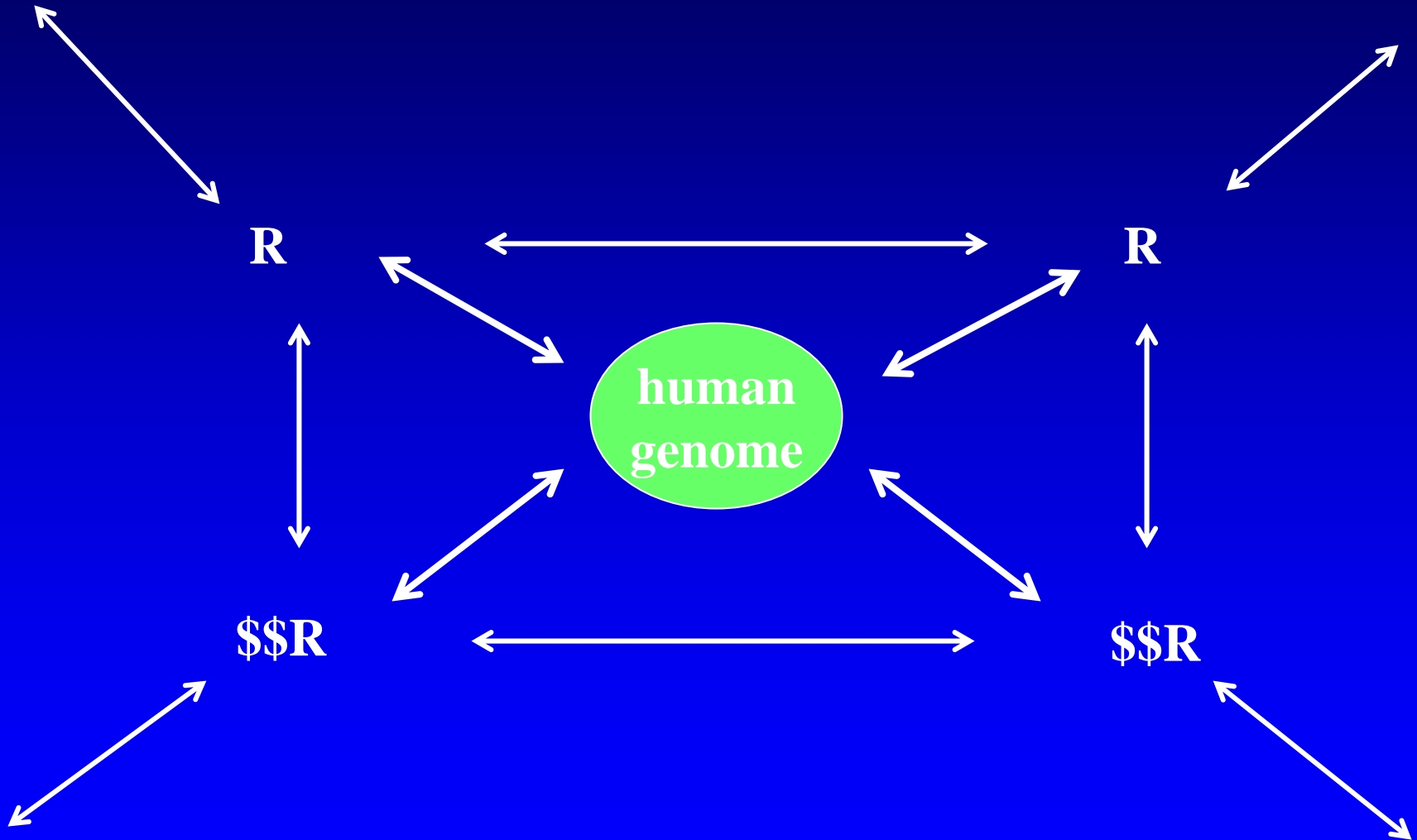
Assemblies of 1-2 kb are deposited in public database (GenBank, EBI) every 24 hours

No patents are filed

Proprietary database



Public database



Conservation of vertebrate Promoter 1a sequences

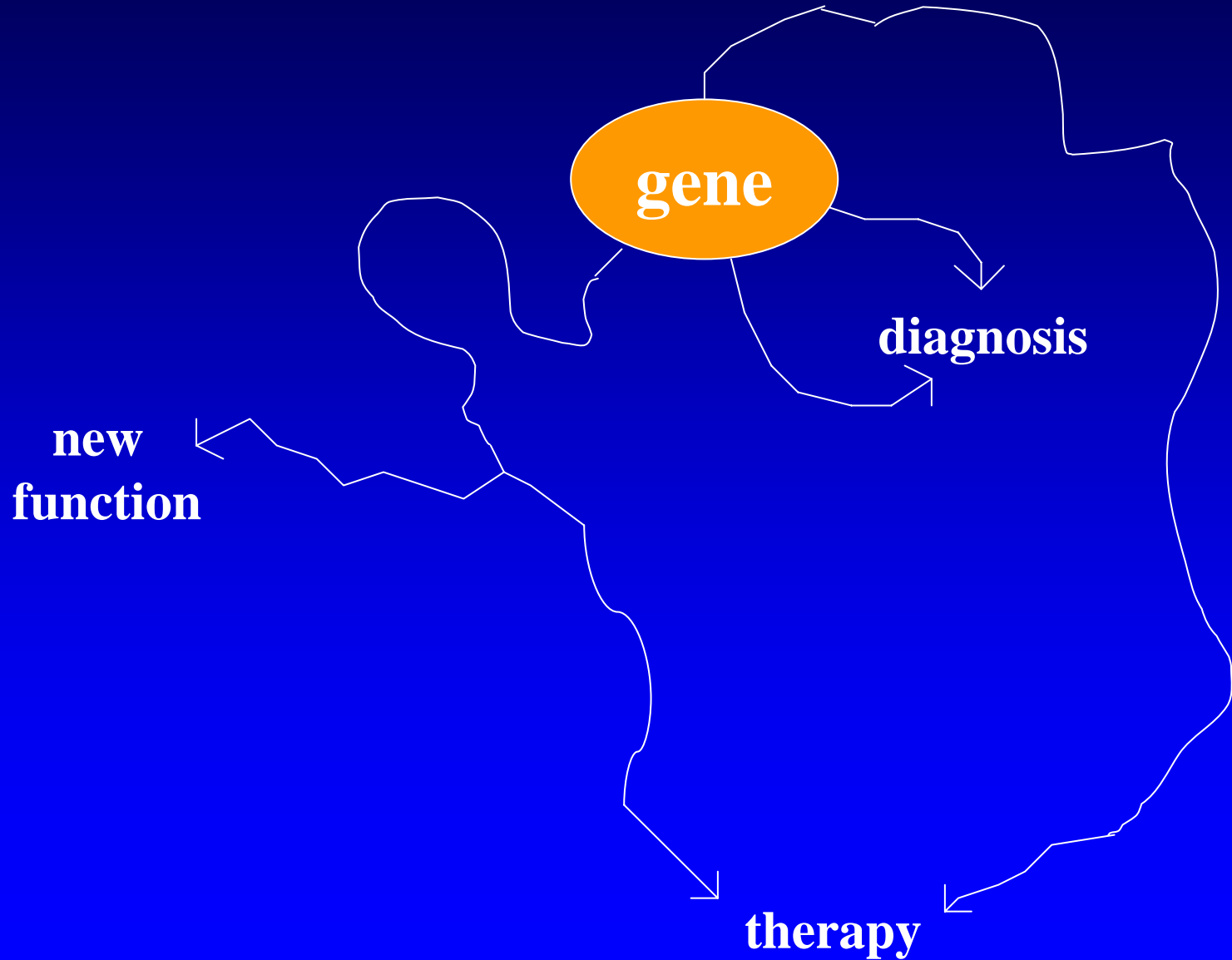
									NF-1		SKN-1
Human	1	CGCTCAACCAGTCCCCACTCCCTCCGGTGAAATTGCCAAATTA	AAAATGAATCATT	GGCC							
Mouse	1	GCCGCAACCCGTCCCCGCTCCCTCCGGAGAAATTGCCAAATTA	AAAATGAATCATT	GGCC							
Chicken	1	CTGCAATAATTTTCCGCTTTCCTTCGATAAAATTGCCAAATA	AATAATGAATCATT	CATA							
Pufferfish	1	CTTTGCCCTCCACAAGCCTATATAGCCACGACAGCCAAATA	AATAATGAATCATT	CATA							

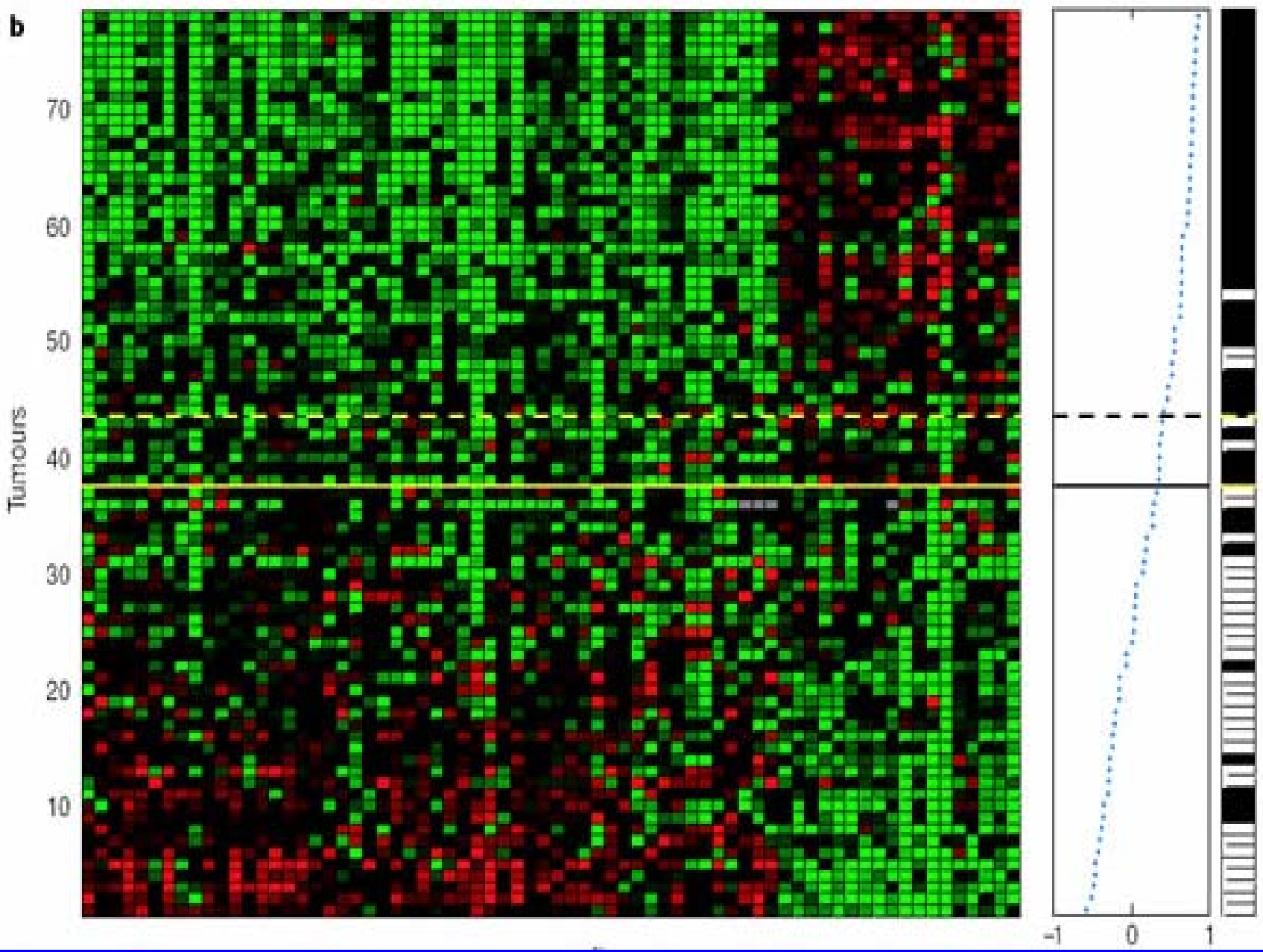
			H-BOX		GATA					GATA
Human	61	CATAATGGCCG-AGGC	GCTTATC	GGGGGCGGGC	--GGAC	CCGCGGCAGTGCC	TTATCTCT			
Mouse	61	CATAATGGCCG-AGGC	GCTTATC	GGGGGCGGGC	-GGCC	-GAGGCGGCTCC	TTATCTCG			
Chicken	61	AATAATGGGTTTAGAA	GCTTATCA	-GGGCAGGC	-GGC	CACTGCTG	-GGGCT	TTATCTCT		
Pufferfish	61	AATAATGGGTTTAGGG	GCTTATCG	-GGAATGAAG	AGGC	CGCTGCCG	-TGCTC	TTATCTCA		

Human	118	GCGGCGCACACGGC	CCCGGCGCGCCTCGGCC	CATGCTAACGAGGCCTGGAACGTGAGTGG
Mouse	118	GCGGCGCACACGGC	--GGC-----	GCTAACGAGGCCGCGGGCGGGAGCGG
Chicken	118	CTCGGCACATTGC	AGTA-GTGTTCCGCTCTCCATACTAAATAGGAACTGGACGTGATG	
Pufferfish	119	CTCGGCACATTGC	GGCCTGTGTTCCGCTCCCCATACTGAGGGAGCGCGCTGGATGCAGC	

Human	178	GATTACAGCGCGT-----
Mouse	162	GATTAGAGCGCGCGGCGAGGCGCGGGCGG
Chicken	177	TGGAATTAGAGCCT-----
Pufferfish	179	GTGGAATAACAC-----

Trails of discovery



b

Erosion of trust and goodwill

Public perception of scientists:-

- Career ambition
- Corporate or political agendas
- Marketing and lobbying
- Limitations of declaration of interest

Scientists' view:-

- Aiming to do good
- Talking doesn't always help
- Marketing and the media distort statements
- The rise of irrationality

Society is changing

- People have time, knowledge and tools to question the experts
- Despite frustrations for some, we must keep talking and move on together
- In a technologically complex society, we need independent experts and we need goodwill

public
revenue



discovery

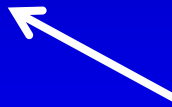


knowledge

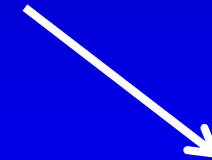
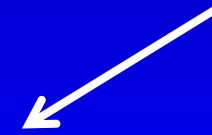


understanding

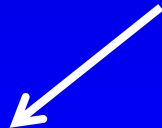
private
revenue



application



culture



good



harm

public
revenue



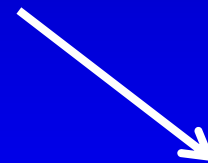
discovery



knowledge



understanding

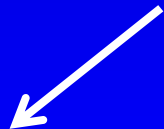


culture

private
revenue



application



good



harm

public
revenue

discovery

knowledge

private
revenue

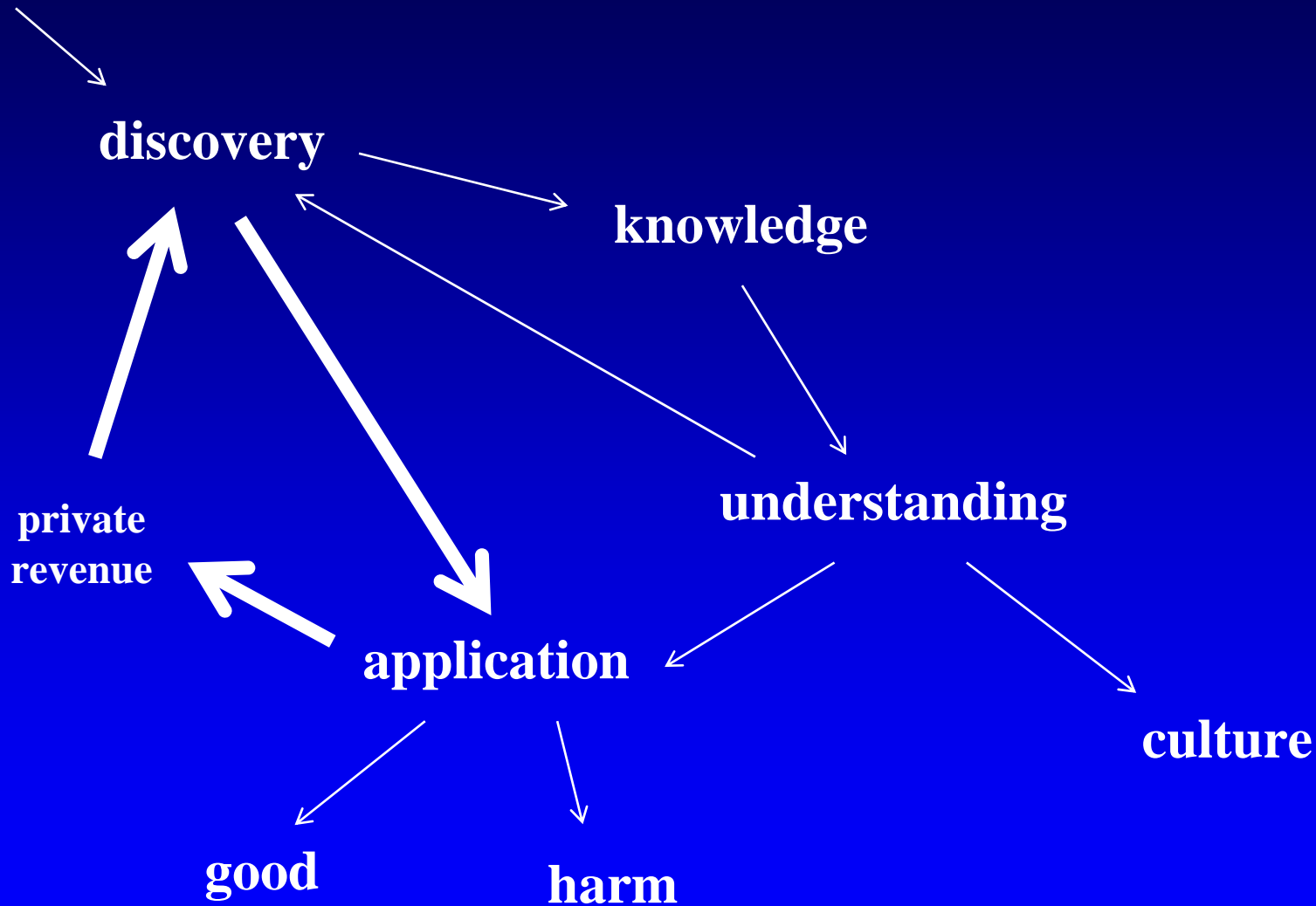
understanding

application

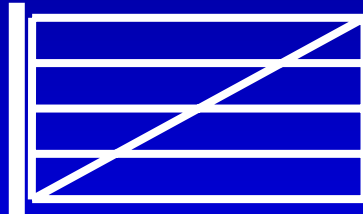
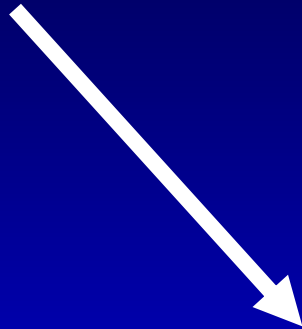
culture

good

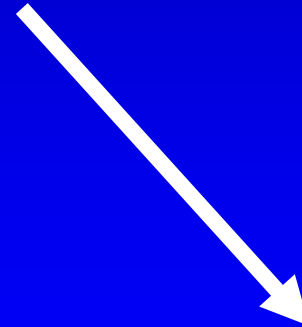
harm



Discovery



Public interest



Application

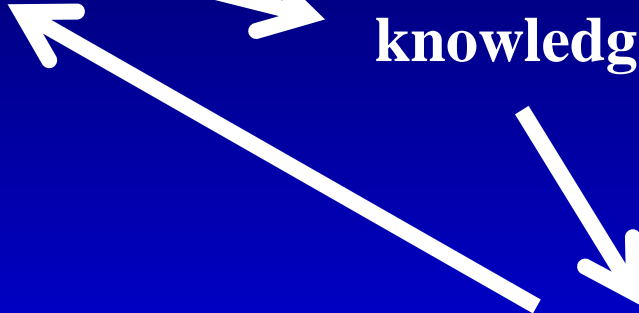
public
revenue



discovery



knowledge

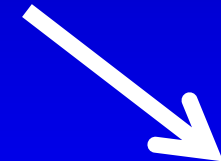
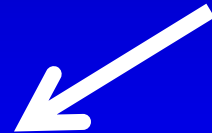


understanding

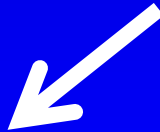
private
revenue



application



culture



good



harm

Free data release - considerations

- Quality
- Ethics
- Intellectual property
- Scientific credit

Structuring the commons

- Common goods
 - basic information
 - open access publication
- Well defined patents, affordable licensing
- International treaties
- Avoiding the tragedy of the nations

ACKNOWLEDGEMENTS

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International *C.elegans* Sequencing Consortium

International Human Genome Sequencing Consortium

The public databases

Medical Research Council

Wellcome Trust

Oxfam

Médecins Sans Frontières

Human Genetics Commission