

Stiinta pentru oameni in epoca genomica



Mircea Iliescu

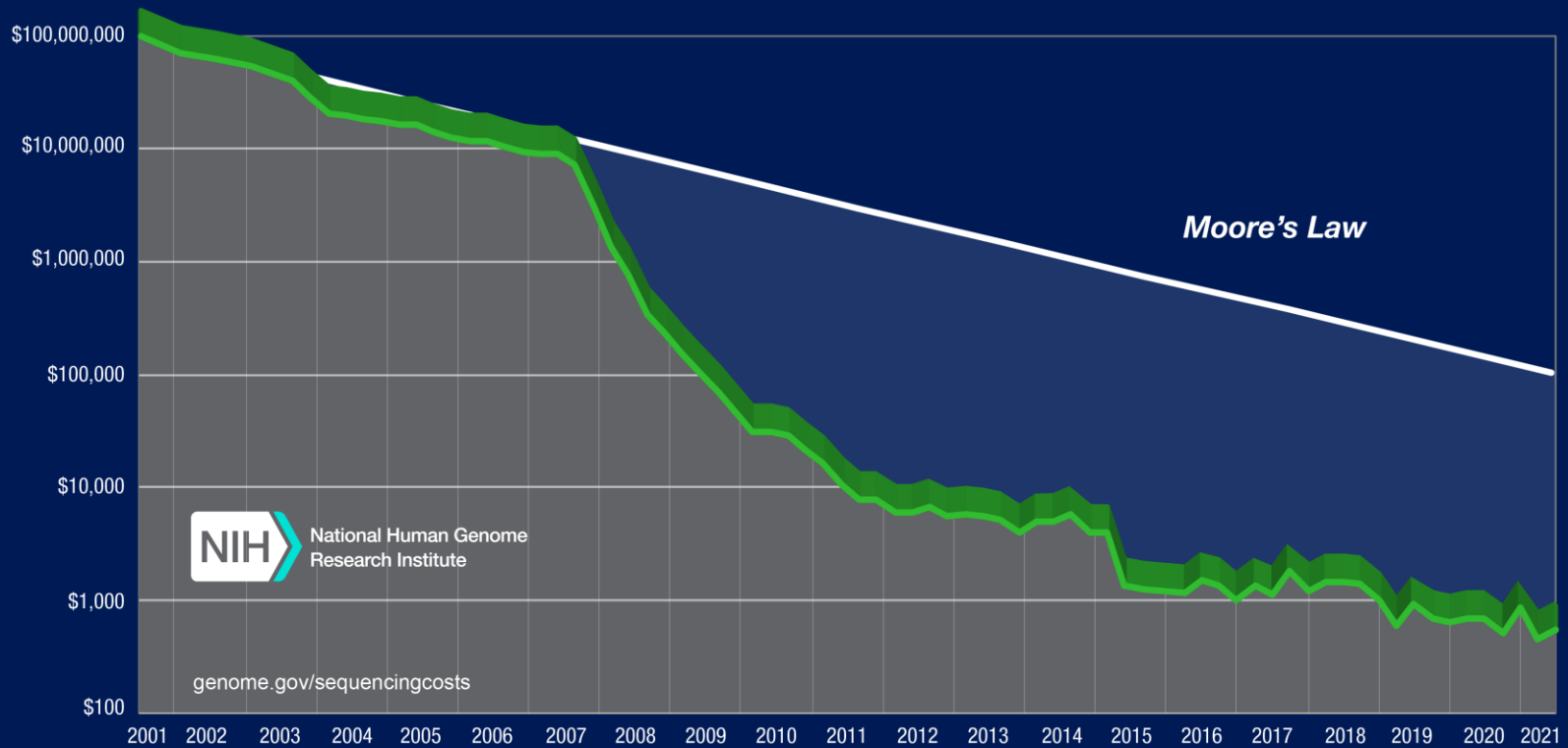
Secventierea ADN-ului



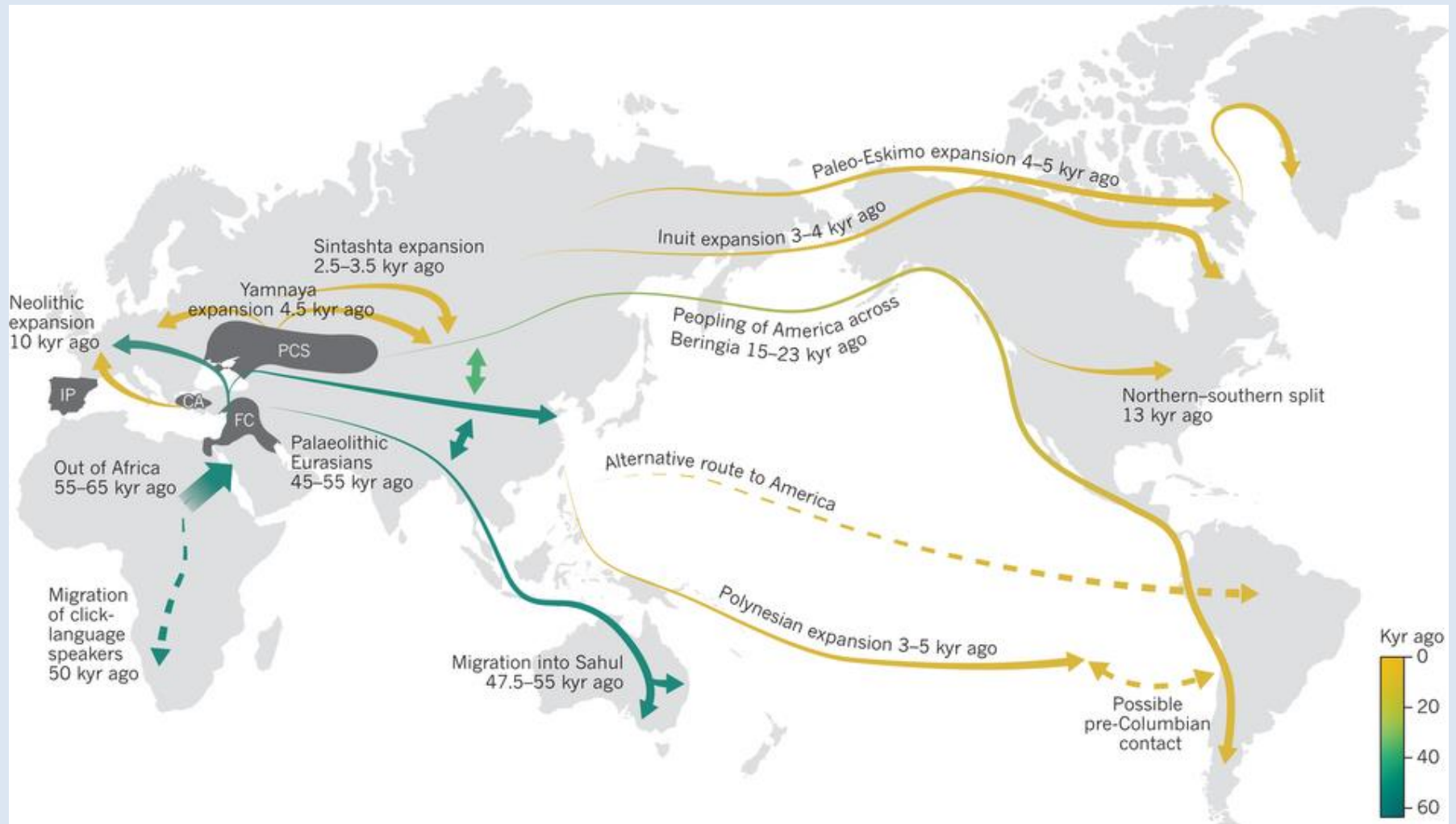
Primul pas: februarie 2001

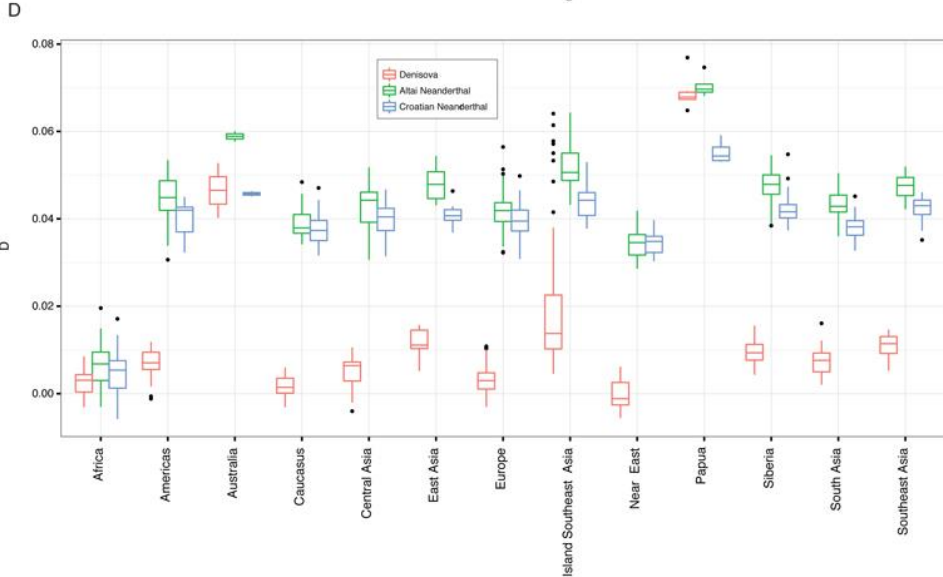
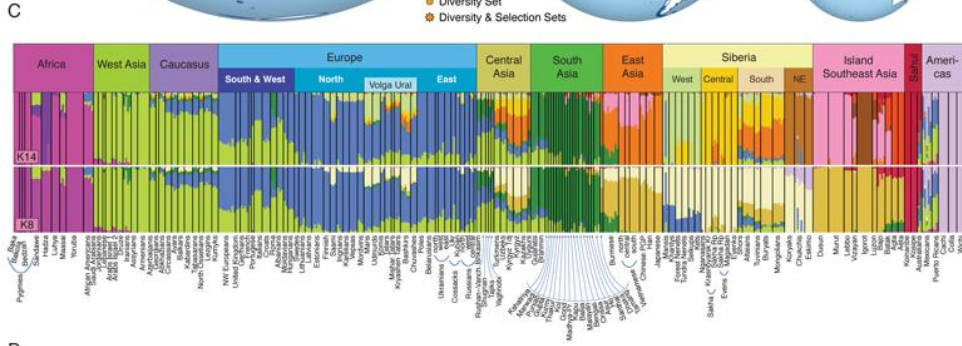
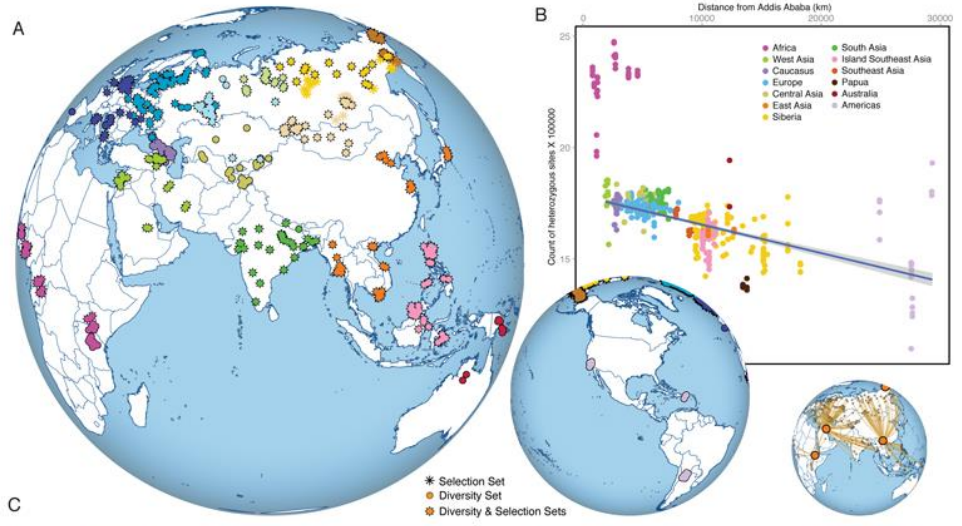


Cost per Human Genome

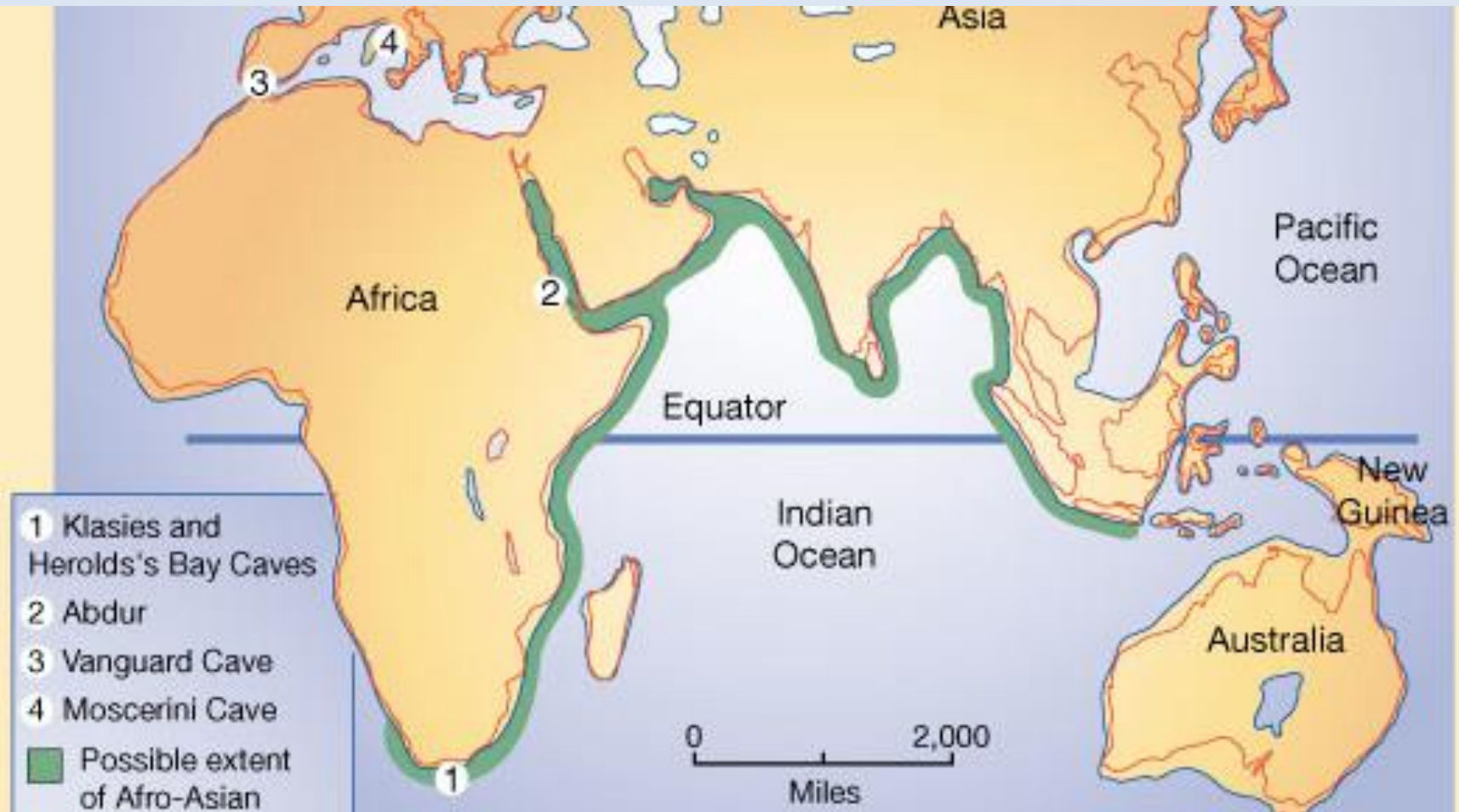


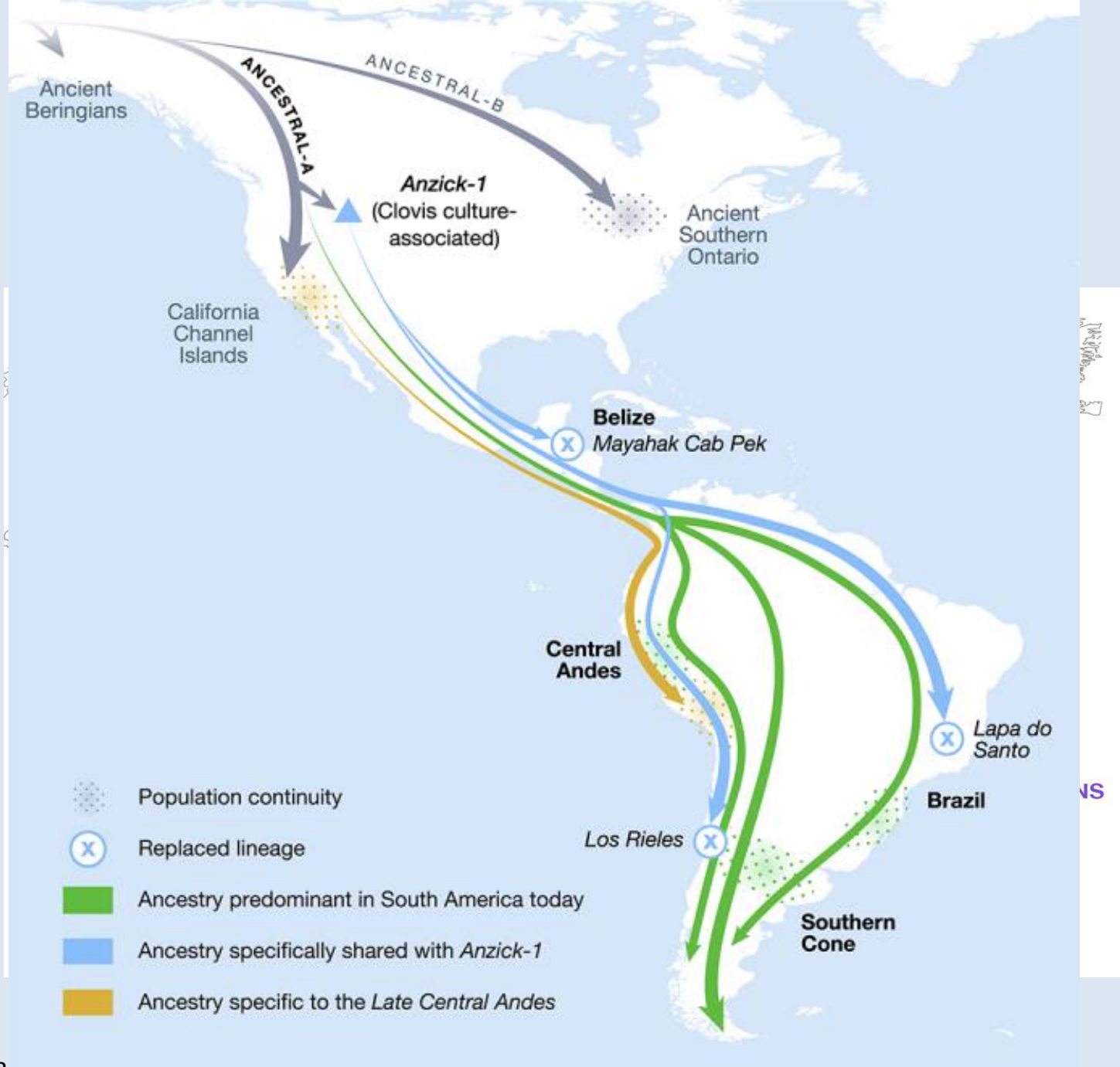
Calatori pe tot globul





Rapidul de-a lungul litoralului

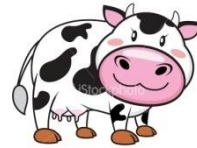




Selectie?

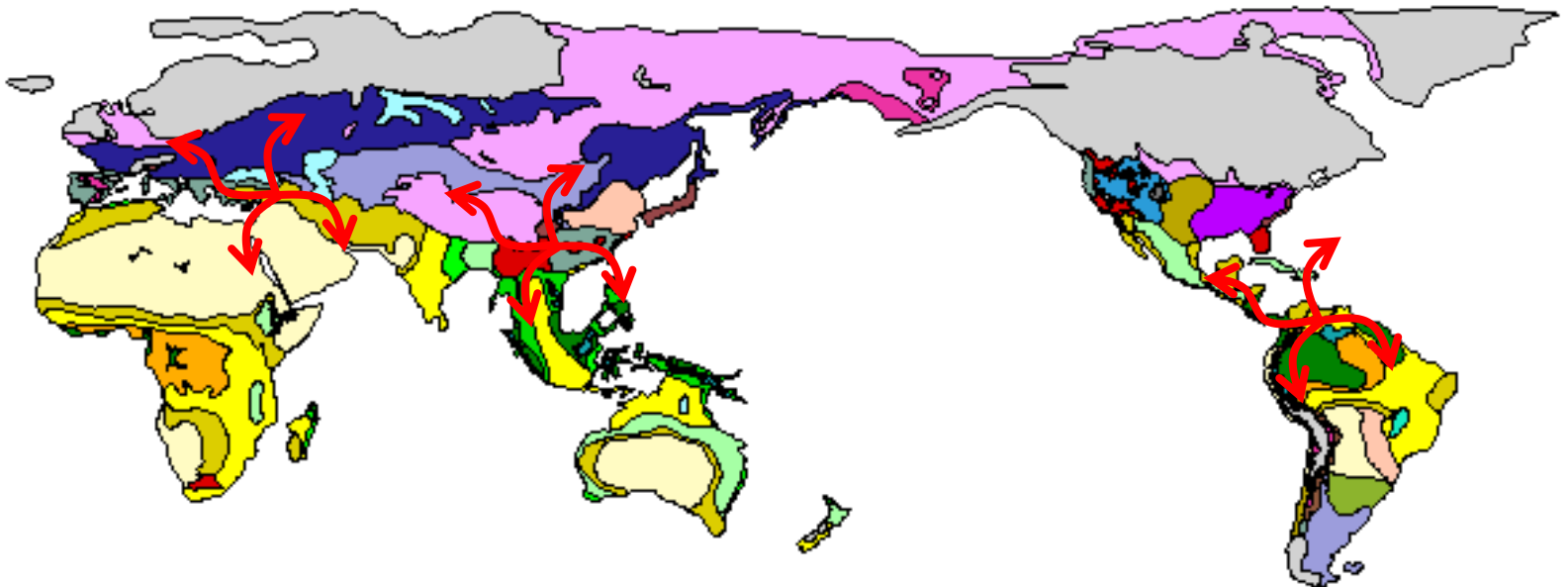


- clima

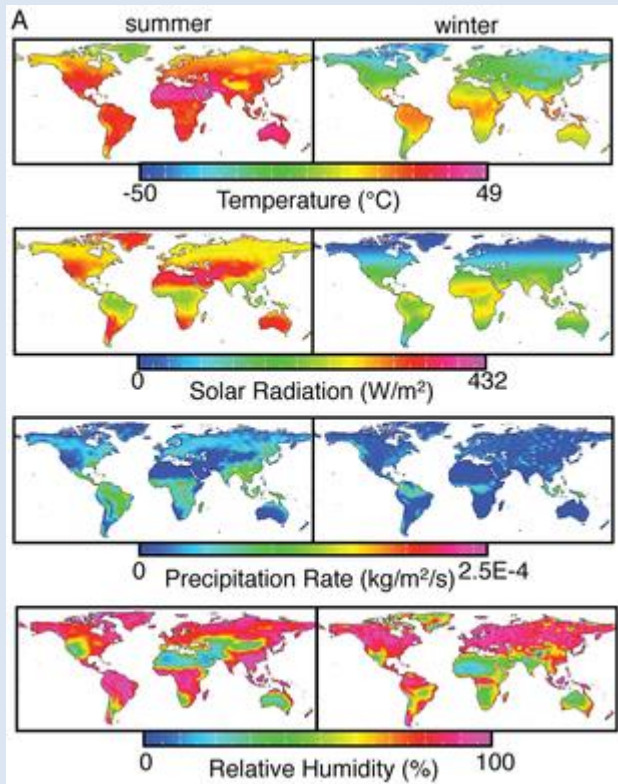


- mancare

- paraziti



Adaptarea la noi medii

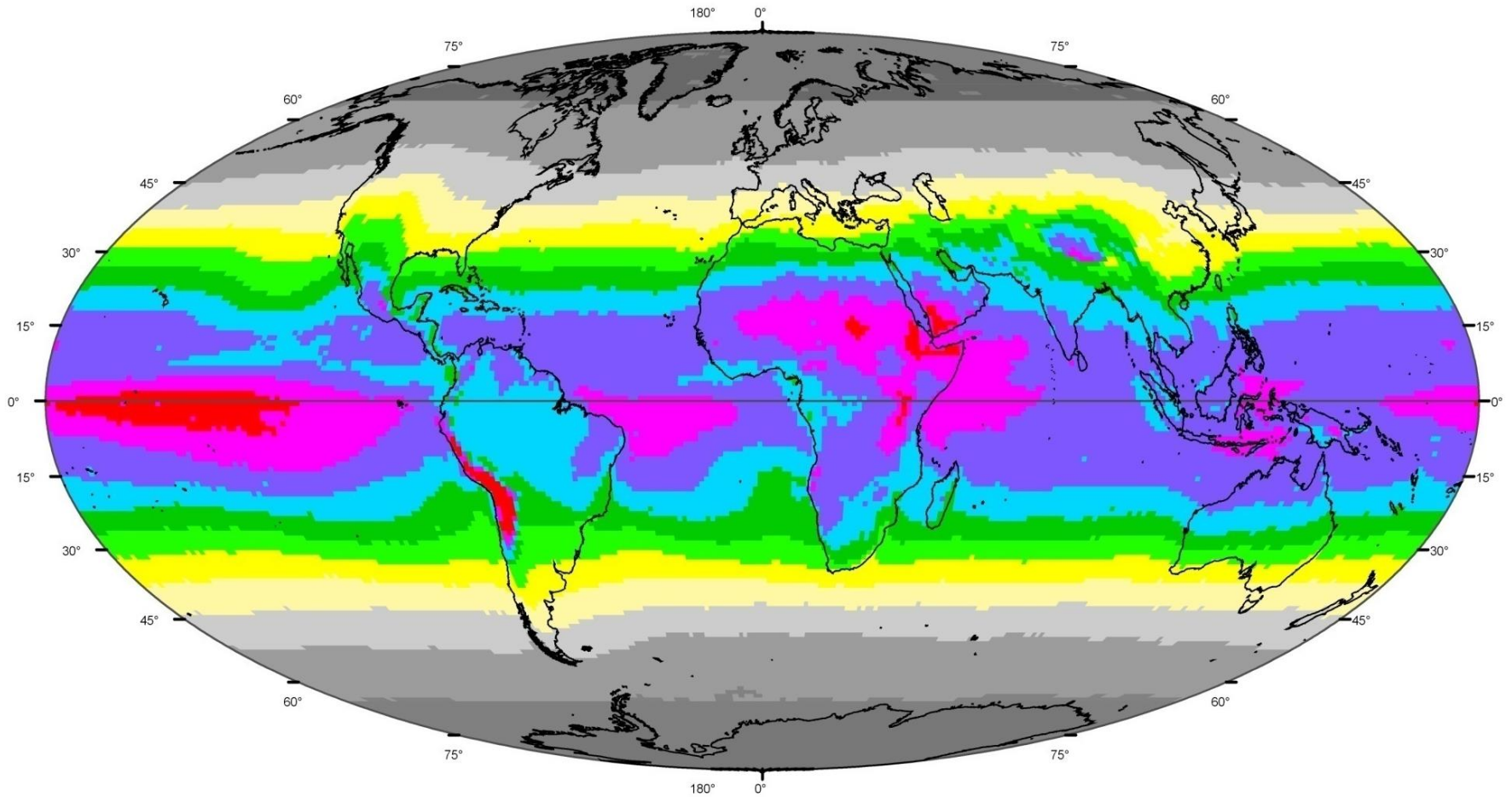


Hancock et al, 2011

- Înălțimea și greutatea
- Culoarea pielii, ochilor, parului
- Adaptarea la altitudine
- Adaptarea la vreme extremă
- Adaptarea la noi patogeni
- Toleranța la lactoză

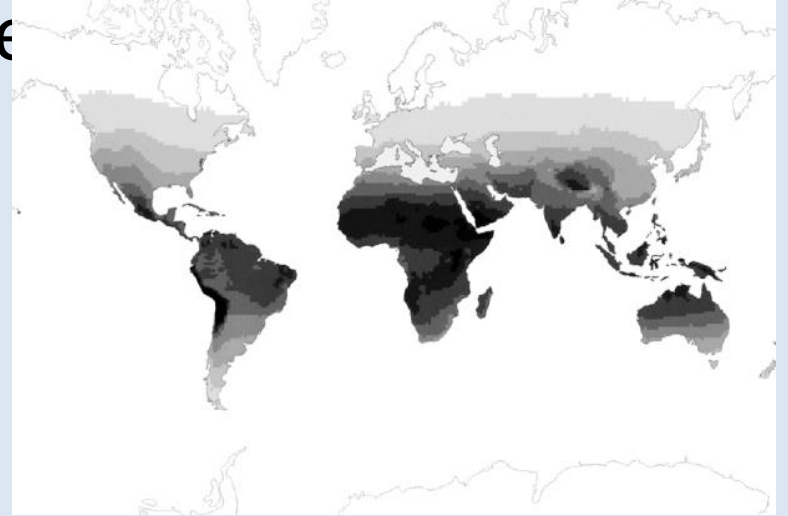


Nivelul radiatiilor UV



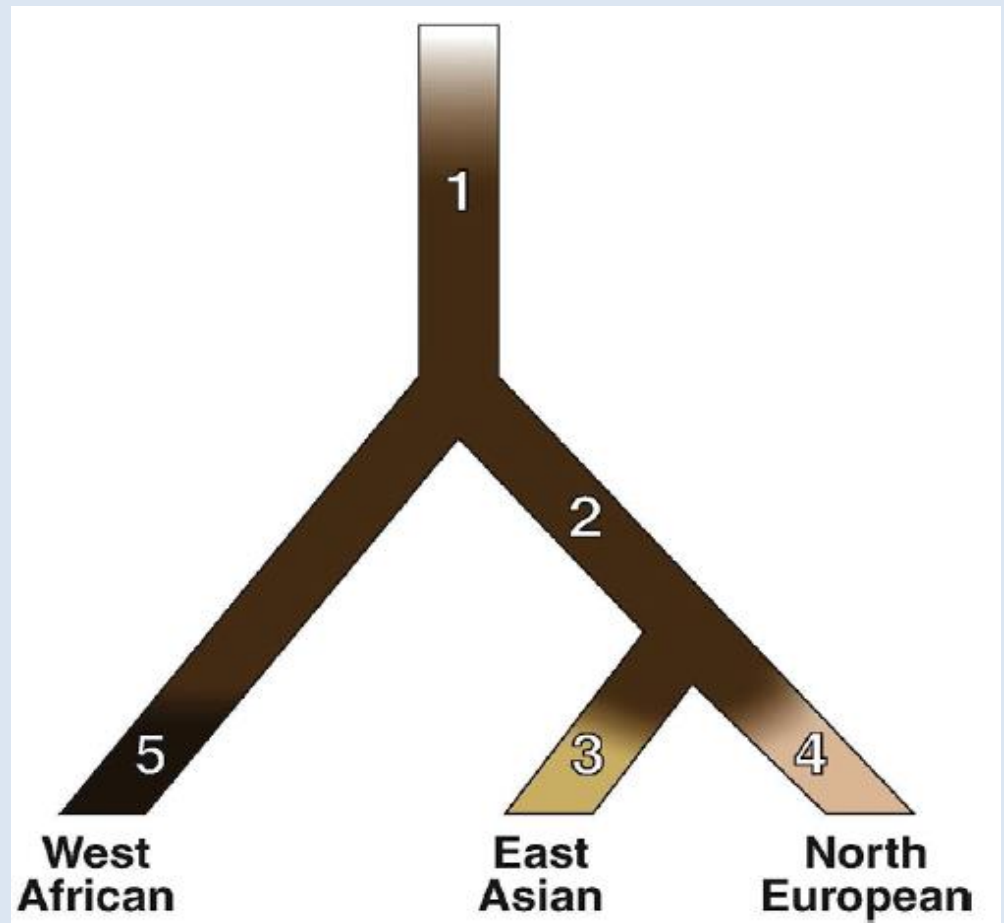
Culoarea oamenilor

- Determinata de cantitatea de melanina din piele
- Culoarea este corelata excelent cu nivelul de UV
- De ce variaza culoarea?
 1. Selectie naturala
 2. Selectie sexuala
 3. La intamplare



Genetica culorii este complicata

- Culoarea pielii este determinata genetica in proportie de peste 80%
- O varianta functionala in gena SLC24A5 explica 30% din diferentele intre europeni si africani
- Evolutie convergenta pentru culoarea deschisa a pielii



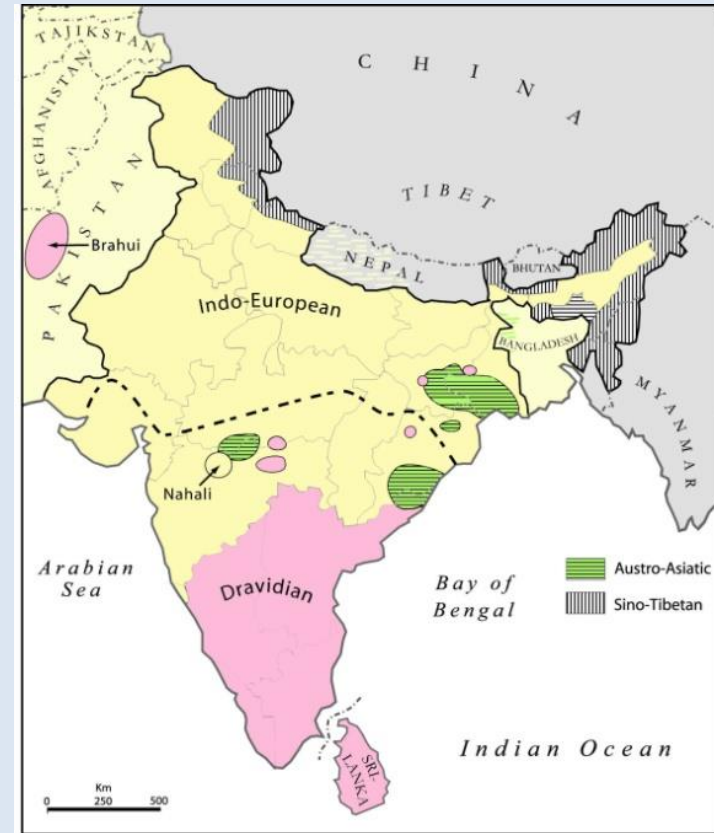
McEvoy et al, 2006

Culori in India



Incredibila diversitate a Indiei

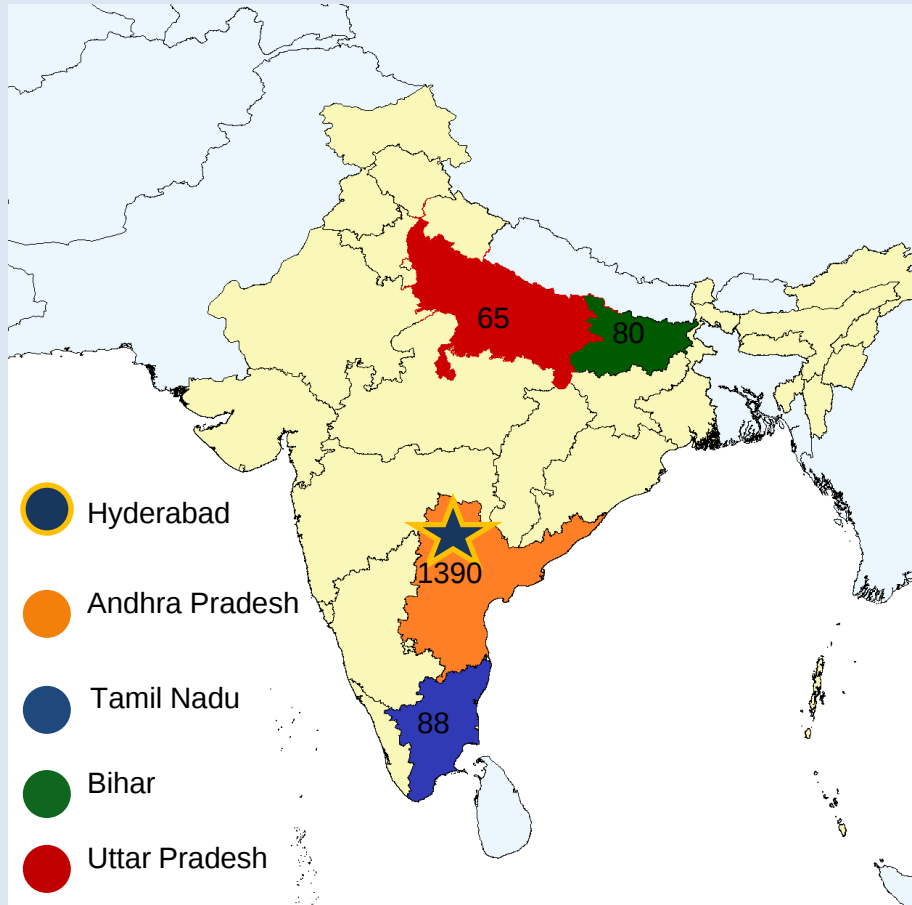
- 100 de limbi vorbite
- Sistemul de caste
- Diversitate genetica mare
- Diversitate notabila a culorii



Fuller 2003



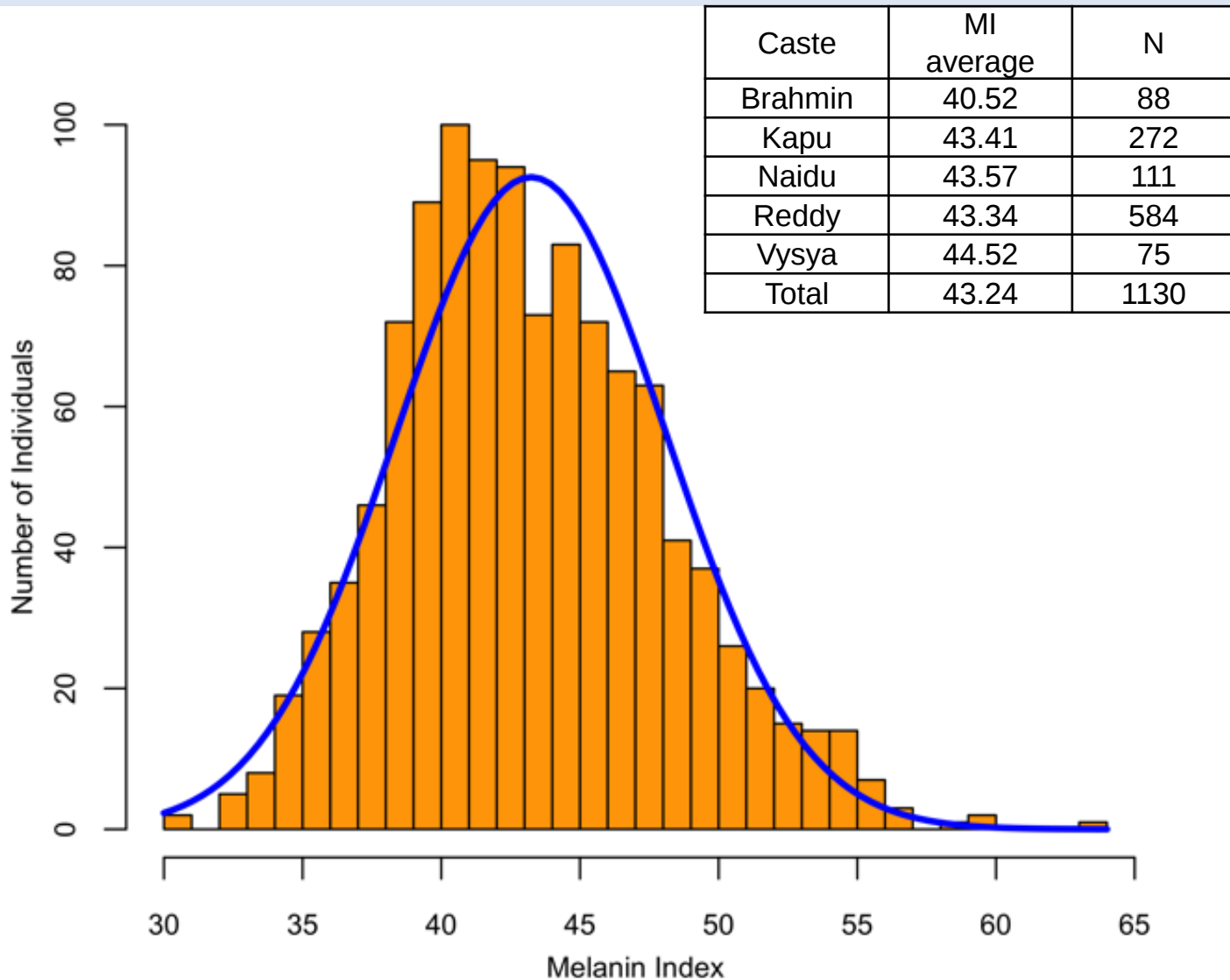
Genotip



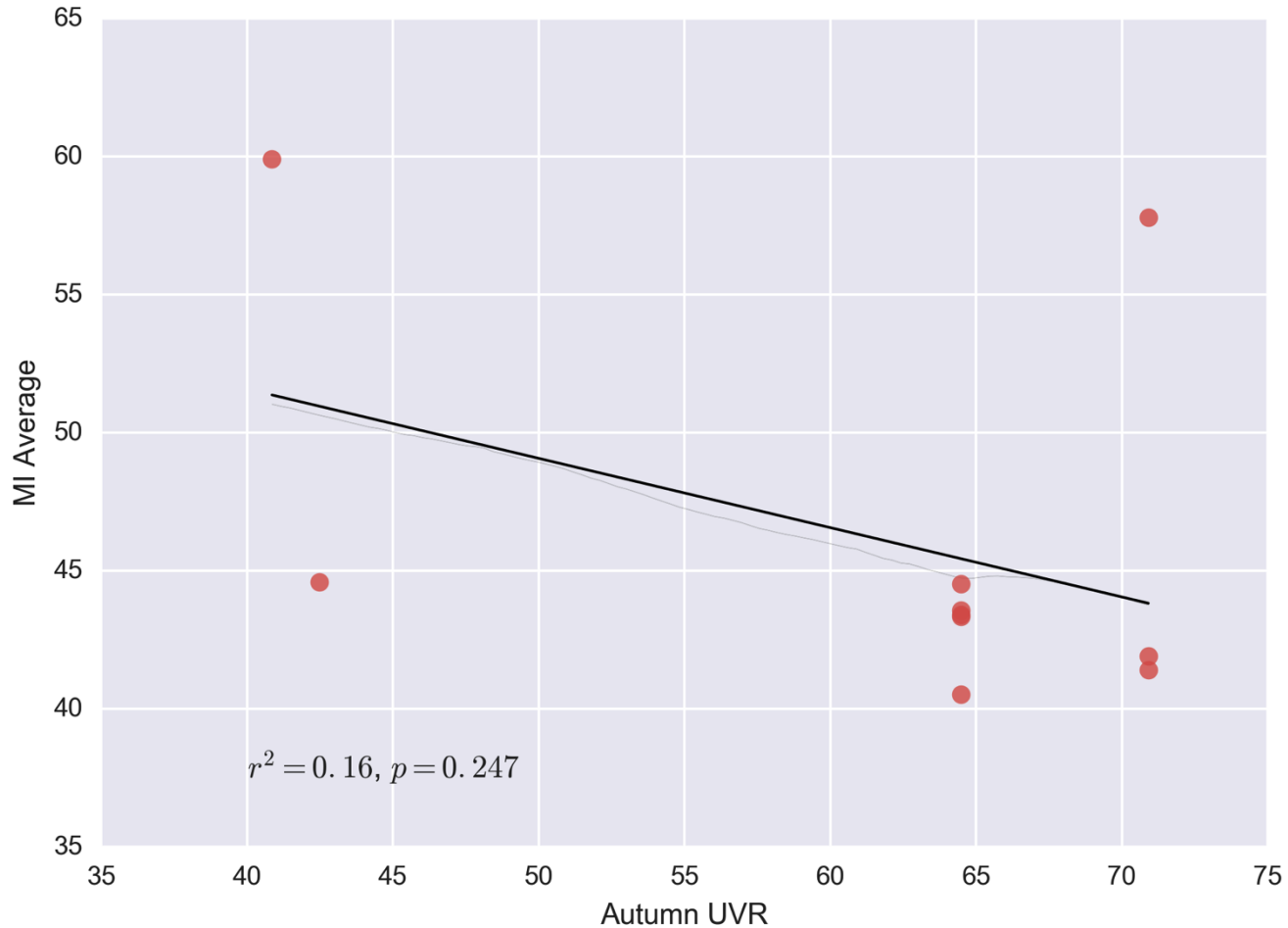
Fenotip: Indexul de melanina



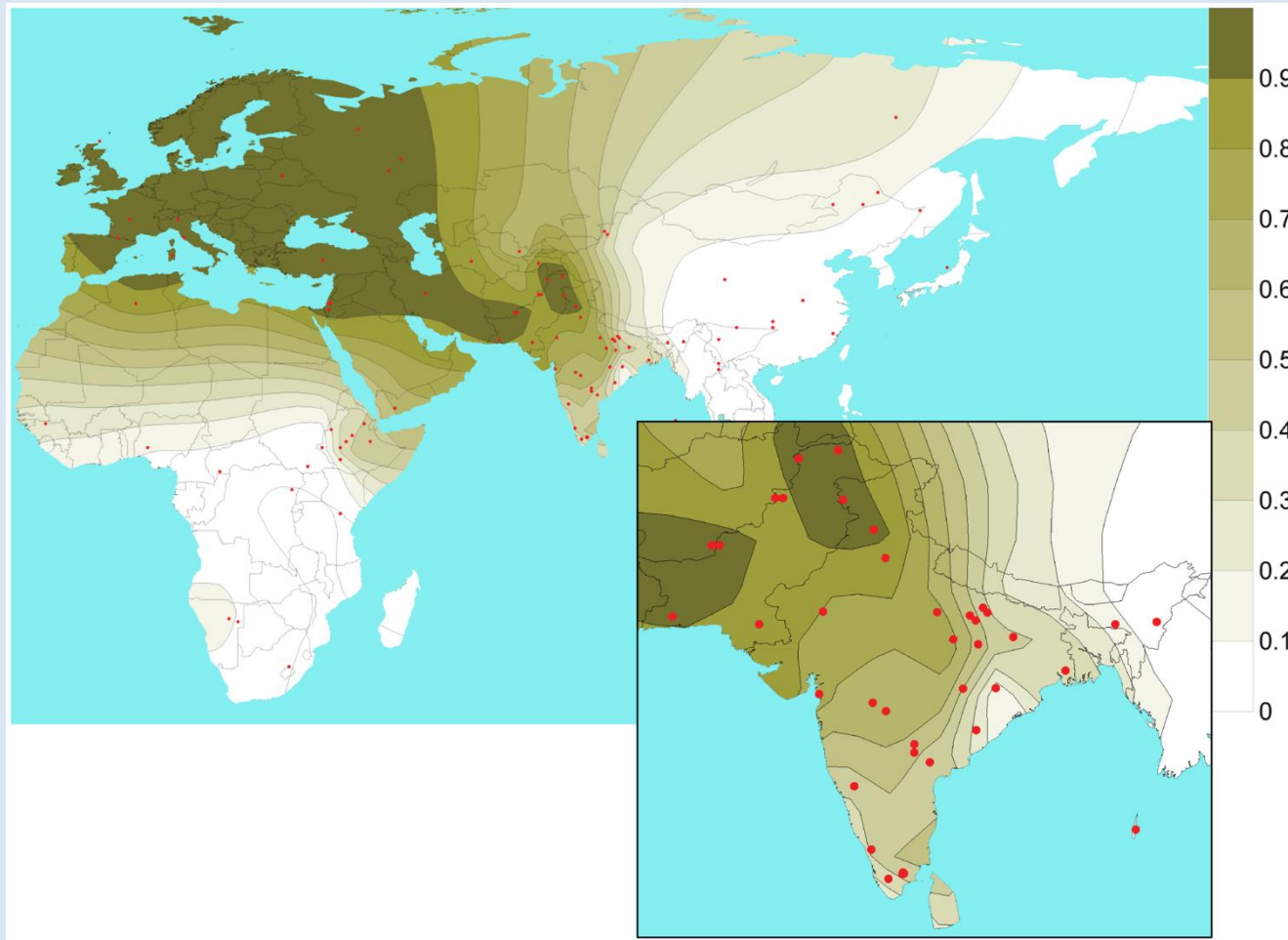
Diversitatea culorii in sudul Indiei



Relatia UV-culoare in India



Frecventa variantei de “culoare deschisa” a SLC24A5 in lume



Complicatul peisaj al culorilor



Adaptarea la altitudine



http://www.pnas.org/content/104/suppl_1/8655.full

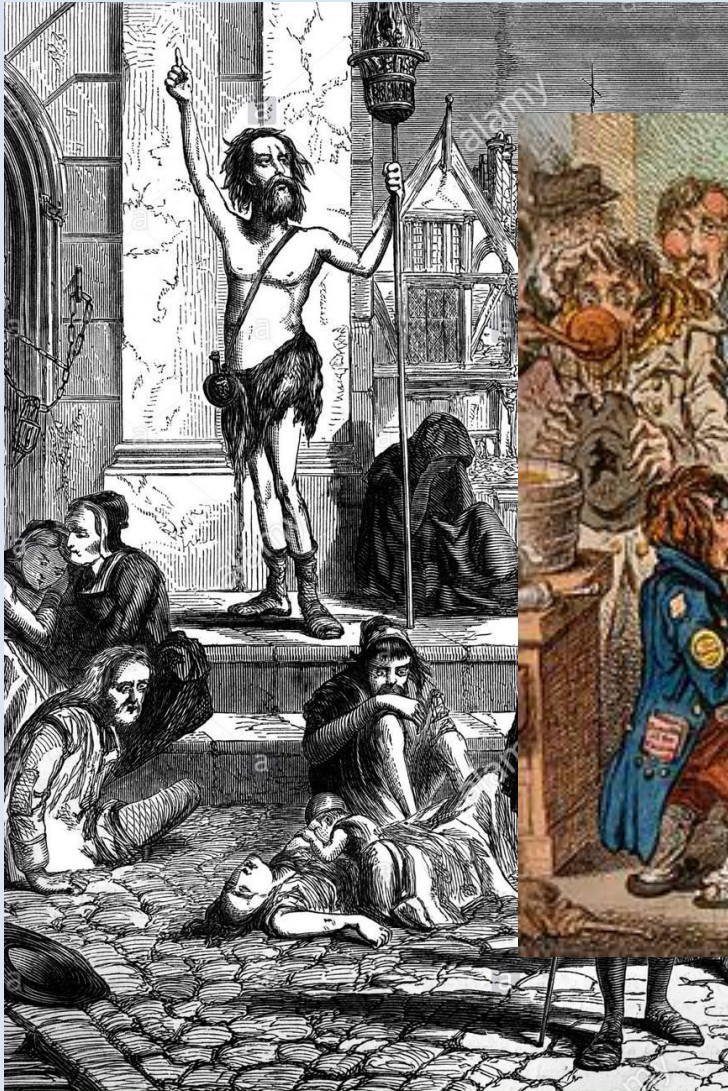
http://news.nationalgeographic.com/news/2004/02/0224_040225_evolution_2.html

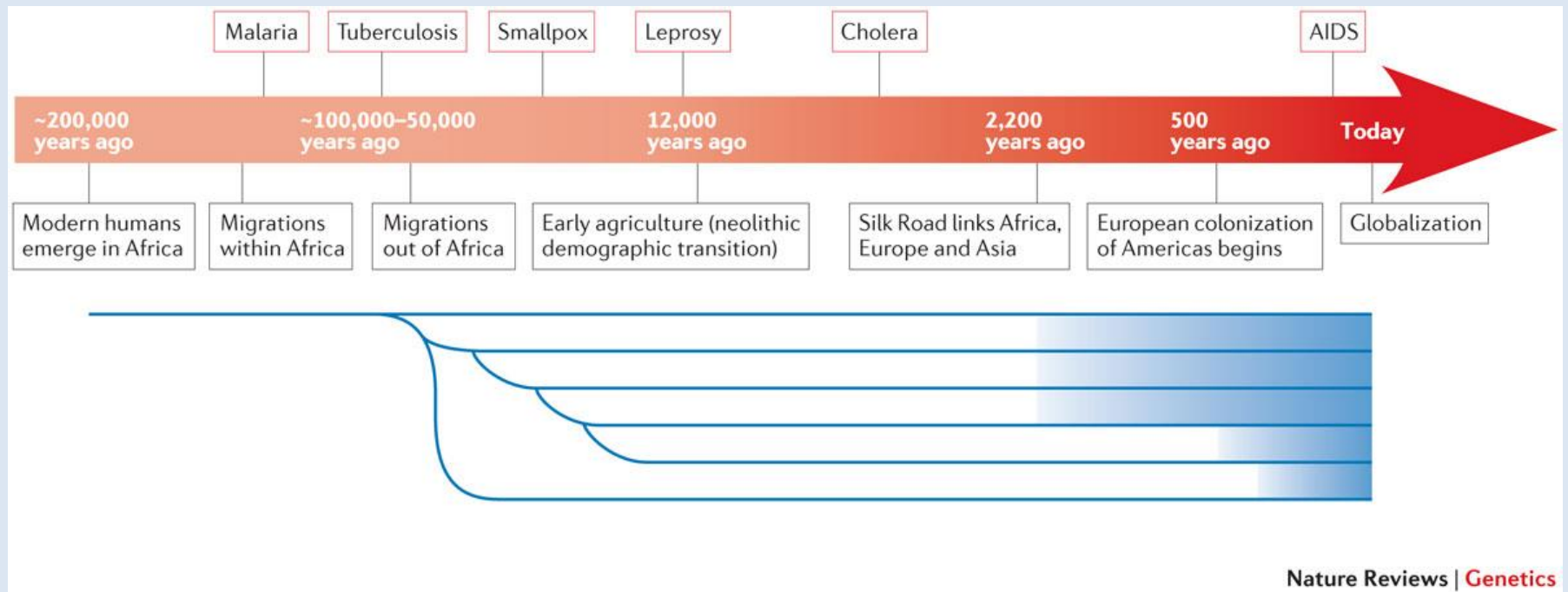
Adaptarea la scufundat– Bajau



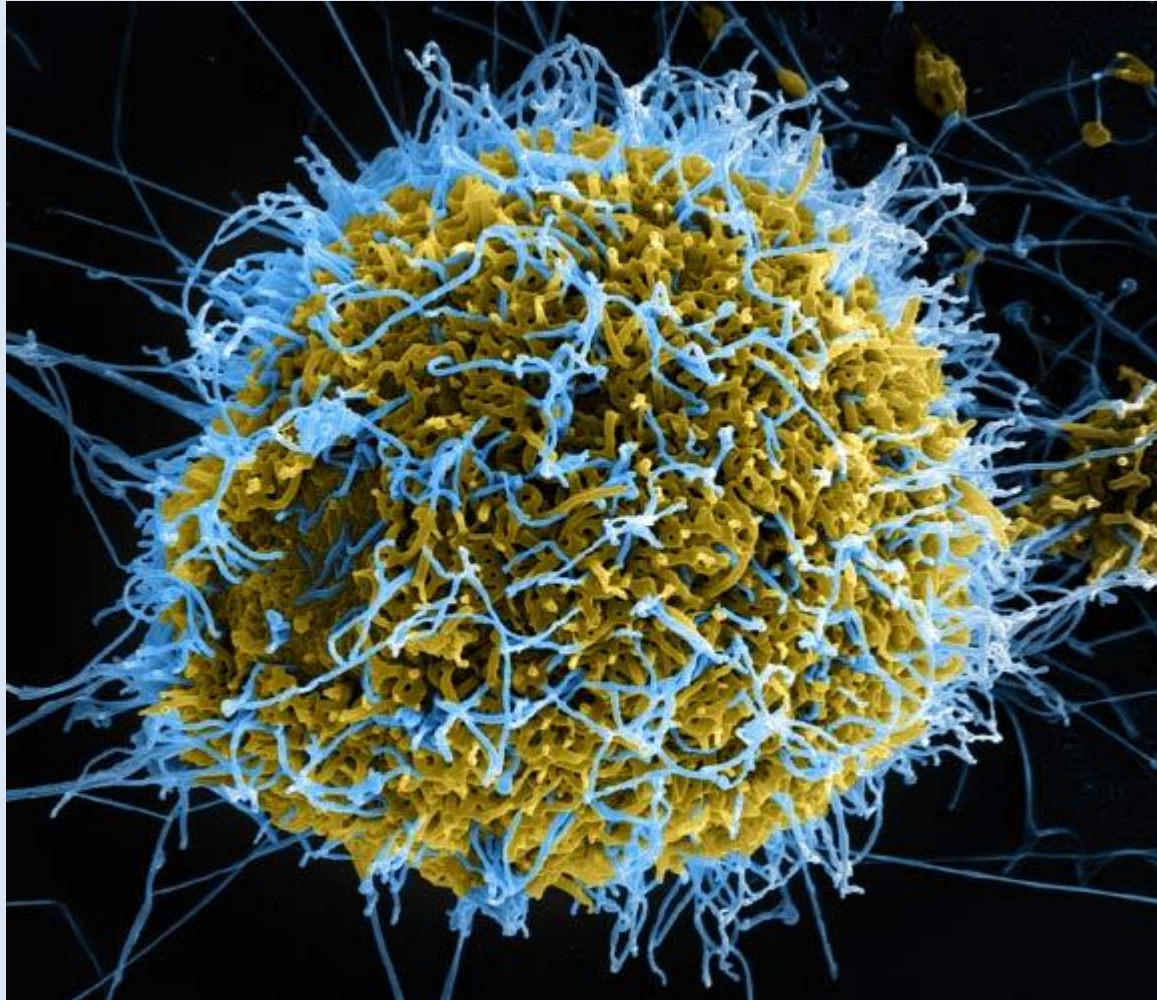
<https://news.berkeley.edu/2018/04/19/enlarged-spleen-key-to-diving-endurance-of-sea-nomads/>
<https://www.sciencemag.org/news/2018/04/indonesian-divers-have-evolved-bigger-spleens-hunt-underwater>

Patogenii ca generatori ai evolutiei





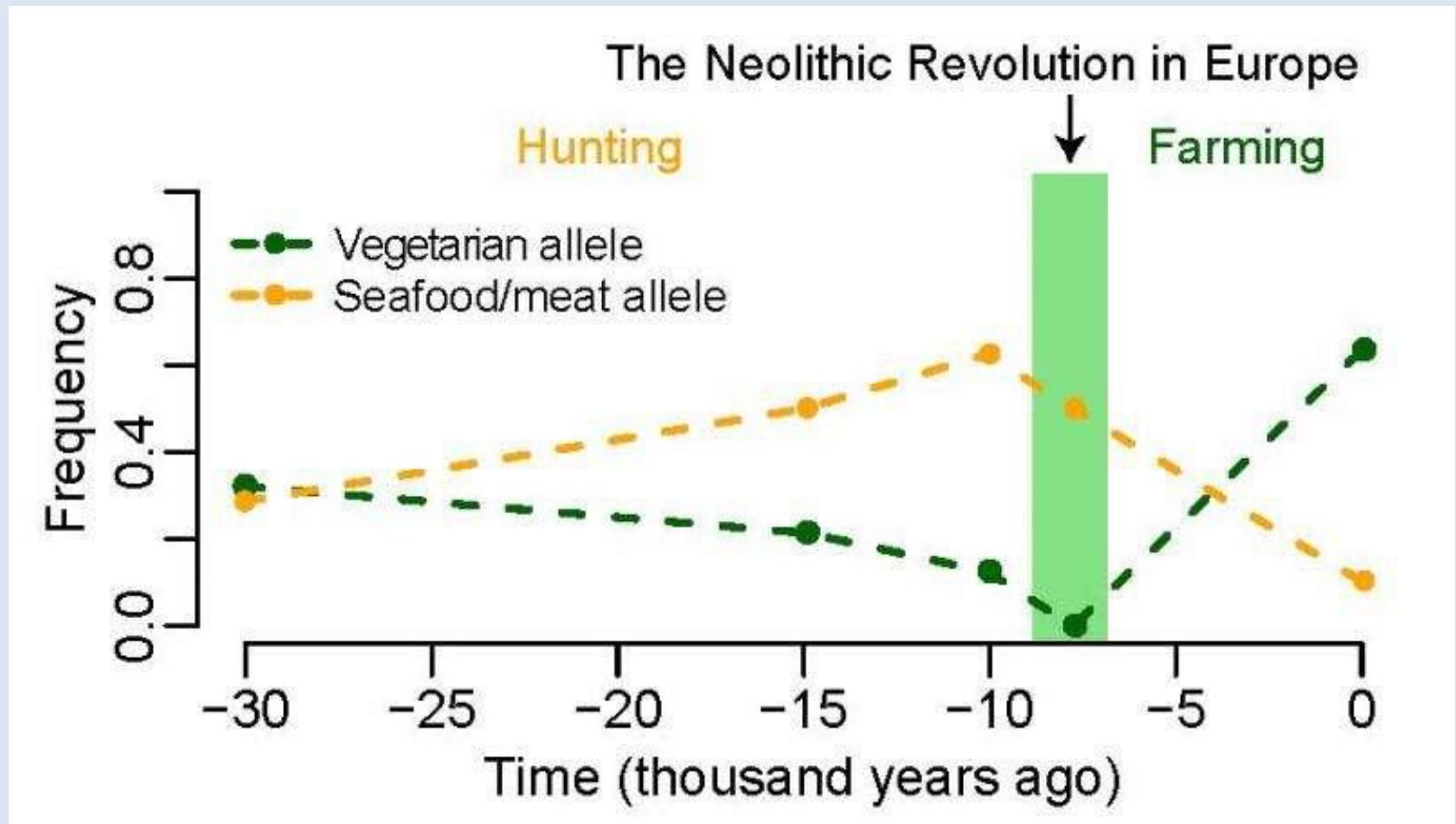
Virusul este o forta semnificativa in evolutia noastra



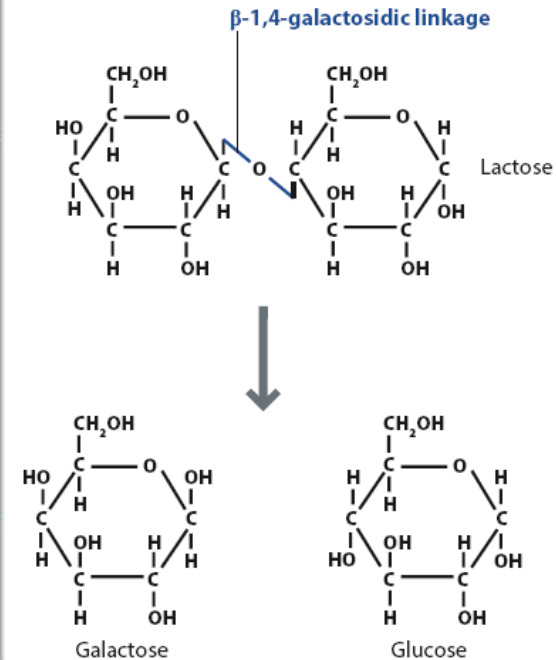
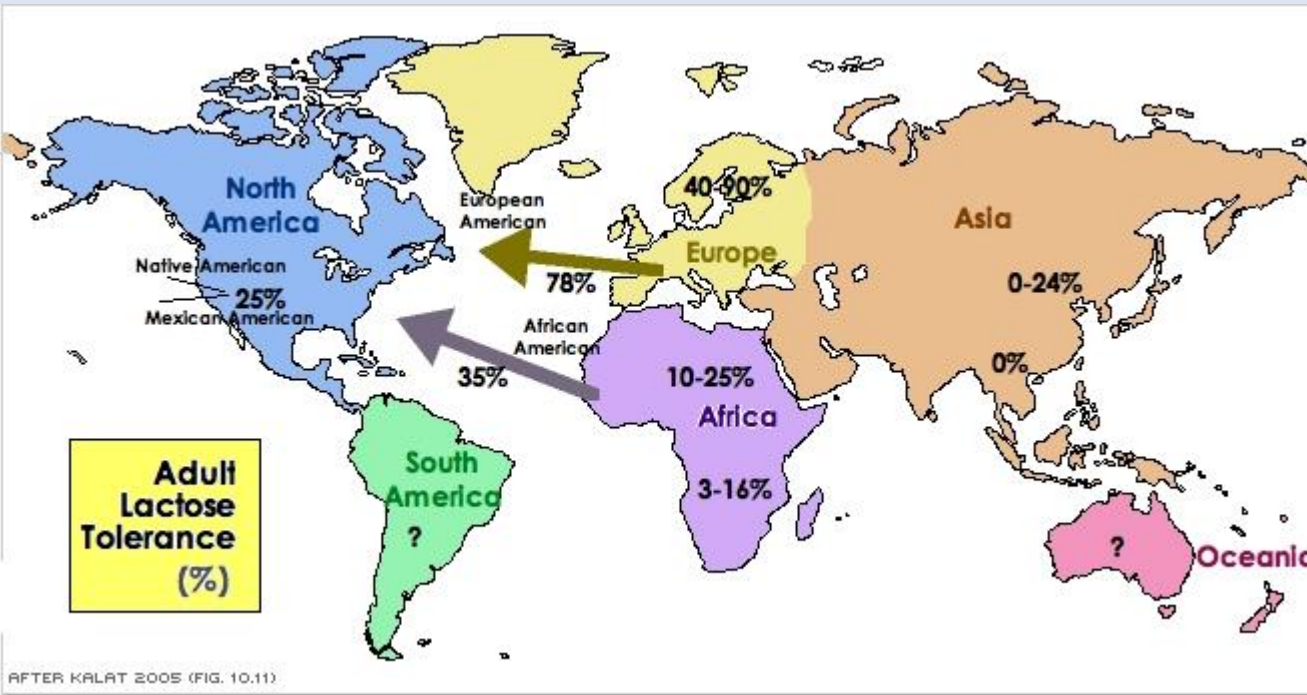
Ciuma a lasat urme in genomul nostru



Adaptarea la dieta



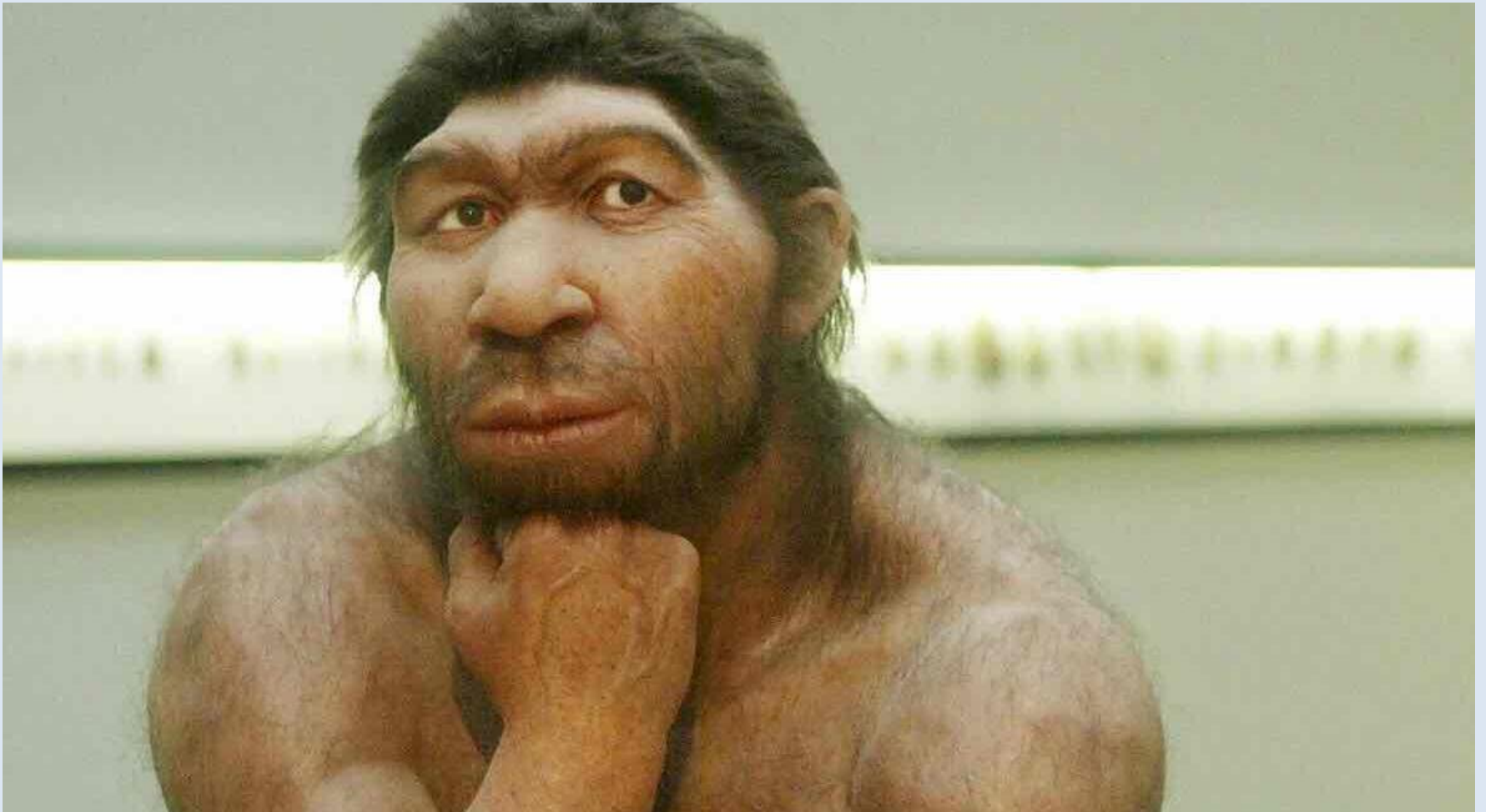
Evolutie culturalo-genetica: lactasa



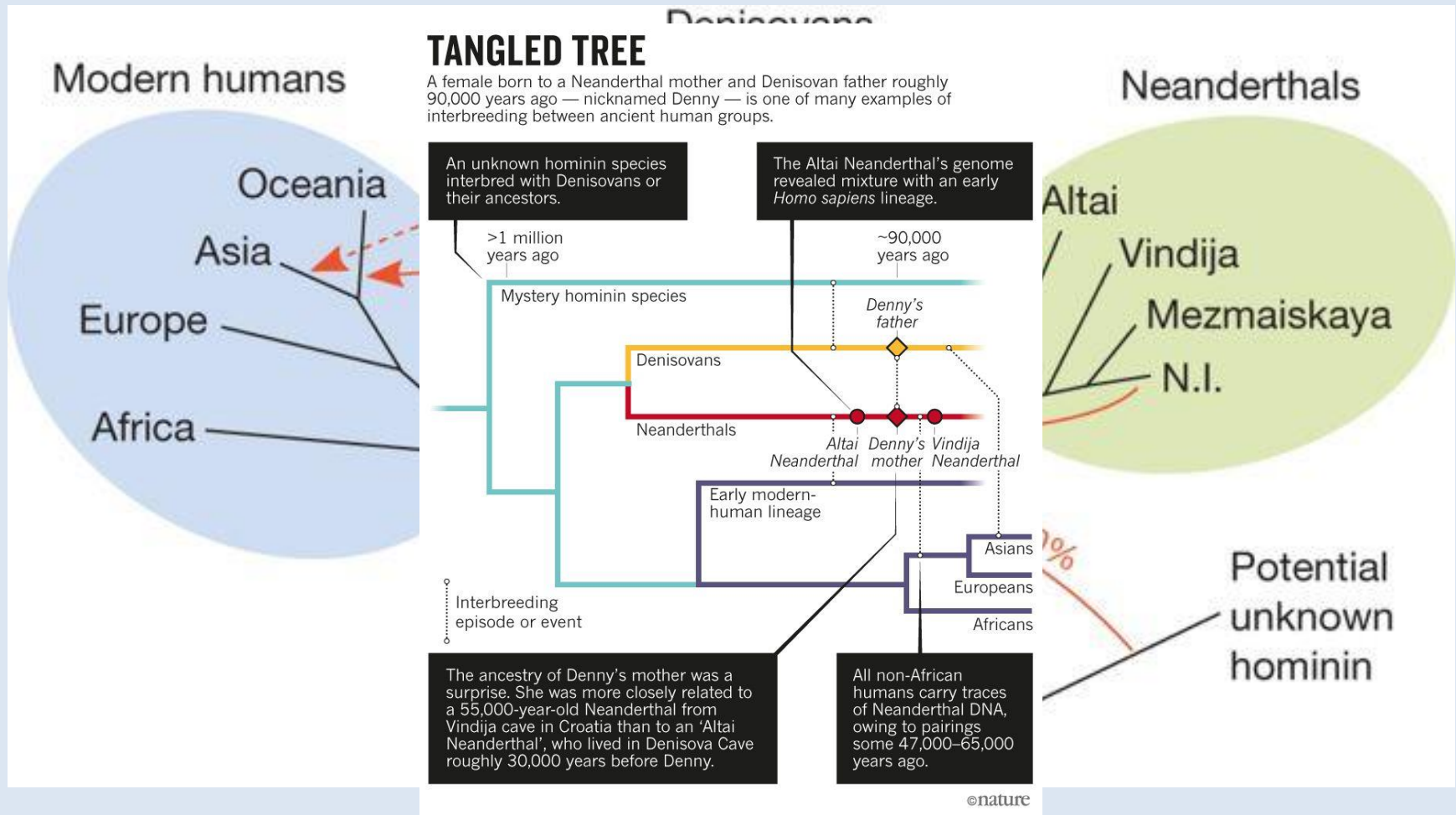
Intalniri de familie



Neandertali



Nenumarate intalniri intre verisori



<http://www.nature.com/nature/journal/v530/n7591/abs/nature16544.html>

<https://www.nature.com/nature/journal/v505/n7481/full/nature12886.html>

Neanderthalul din noi



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By Smitha Mundasad