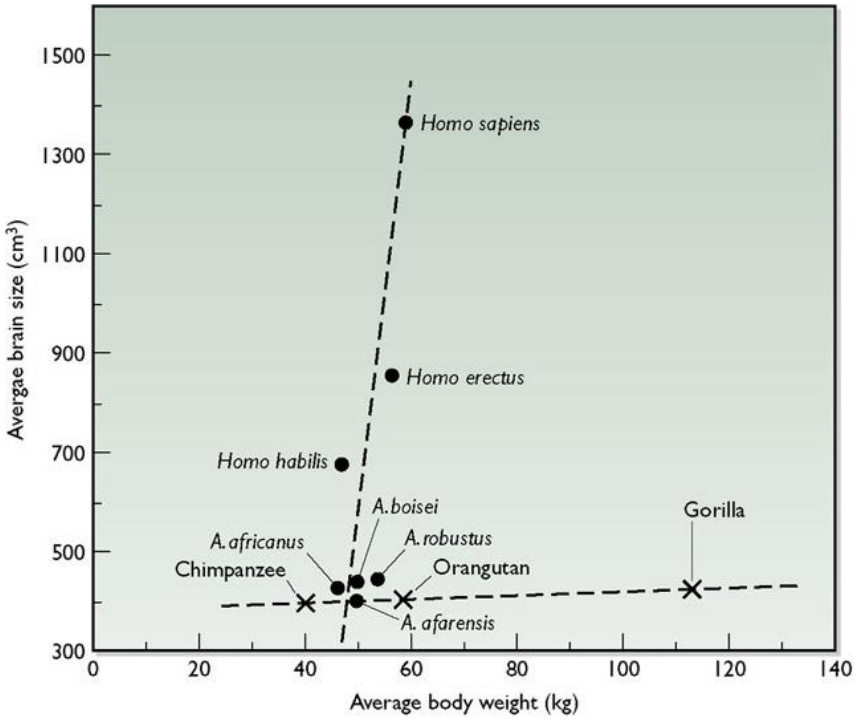
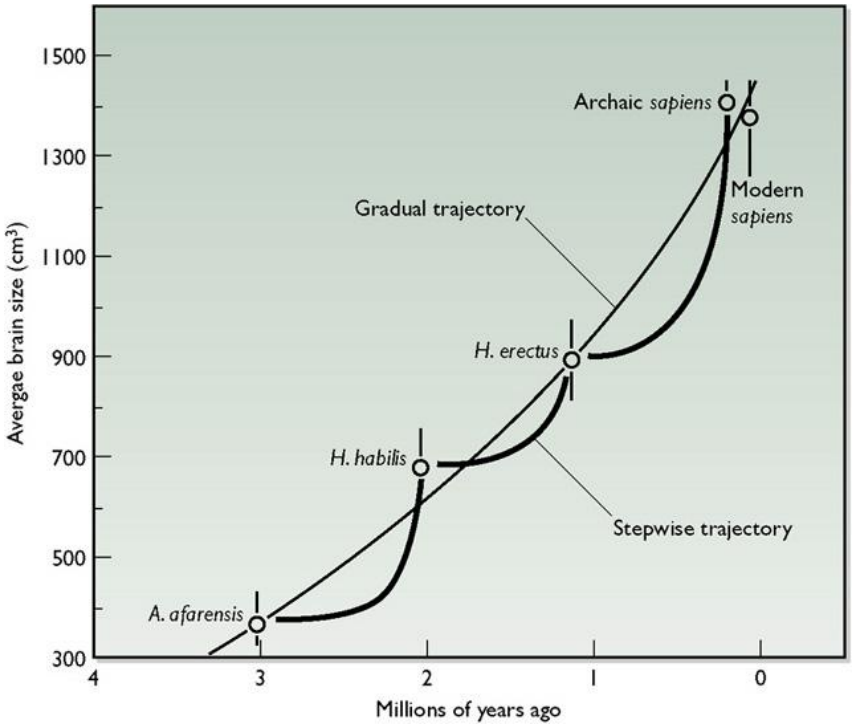
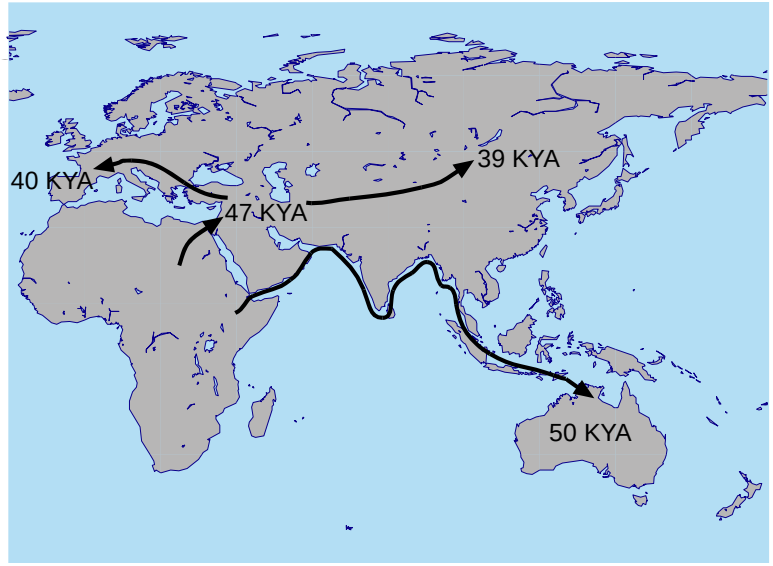
Studi sull'evoluzione dell'uomo: alcuni esempi

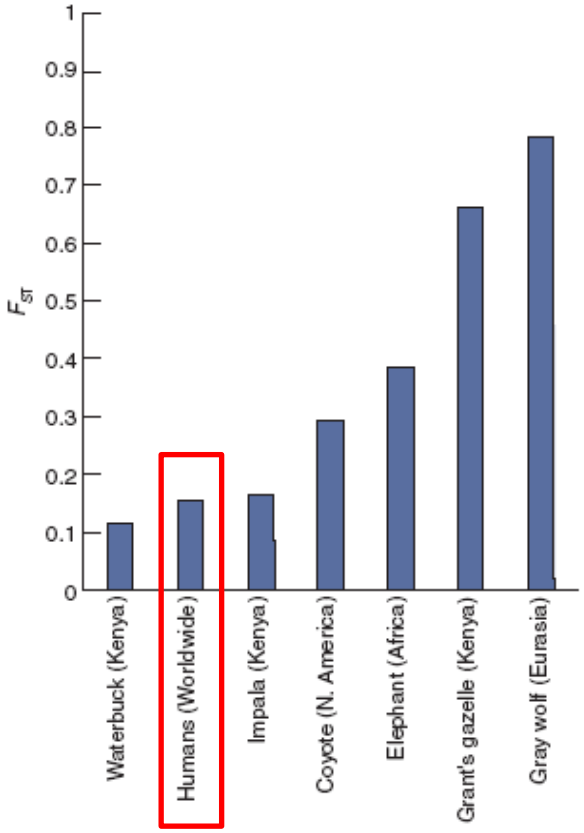




Selezione di caratteri morfologici rispetto al altri primati: trend nelle dimensioni del cervello

Studi sull'evoluzione dell'uomo: alcuni esempi





Storia della nostra specie e di altri ominidi
(origine, espansioni, ibridazioni, divergenza...)

Studi sull'evoluzione dell'uomo: alcuni esempi

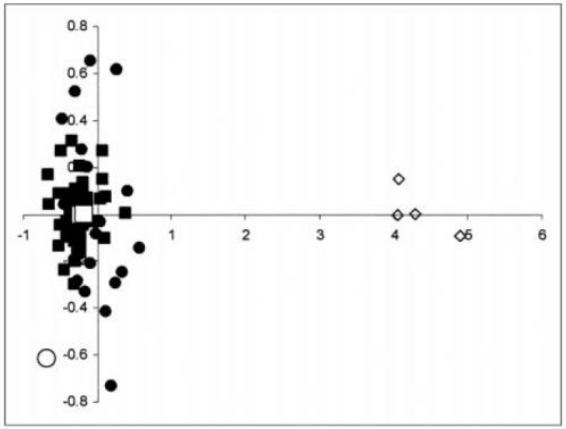


Fig. 1. MDS of HVRI sequences of 60 modern Europeans (filled squares), 20 modern non-Europeans (filled circles), 4 Neandertals (open diamonds), the Australian Lake Mungo 3 (open circle), and the two early a.m.h. typed in this study (open squares). European and non-European sequences in this figure were selected to represent the most divergent lineages observed in modern individuals. Note that the axes have different scales. The stress value for this analysis was 0.128.

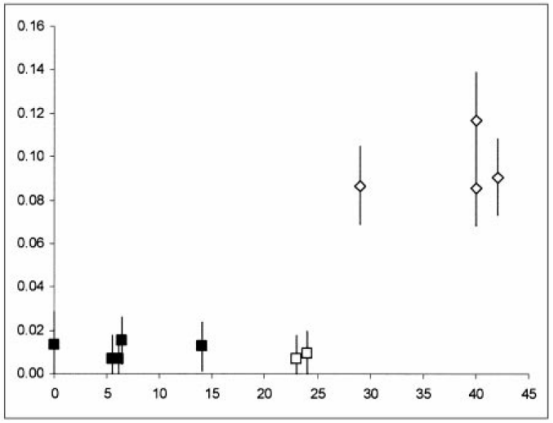
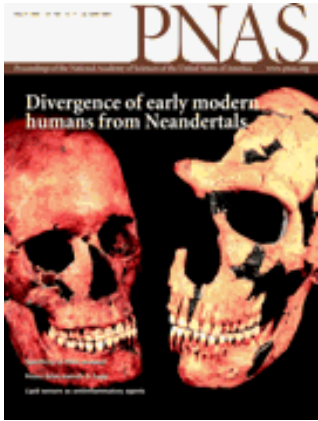


Fig. 2. Average genetic distance between ancient and modern samples (2,566 sequences of modern Europeans; *y* axis), as a function of the samples' age (*x* axis, in thousands of years). Vertical lines represent two standard deviations above and below the mean. Squares, a.m.h. Diamonds, Neandertals. The Paglicci samples typed in this study are indicated by open squares. The point at 0 years indicates the average pairwise difference between present-day samples.

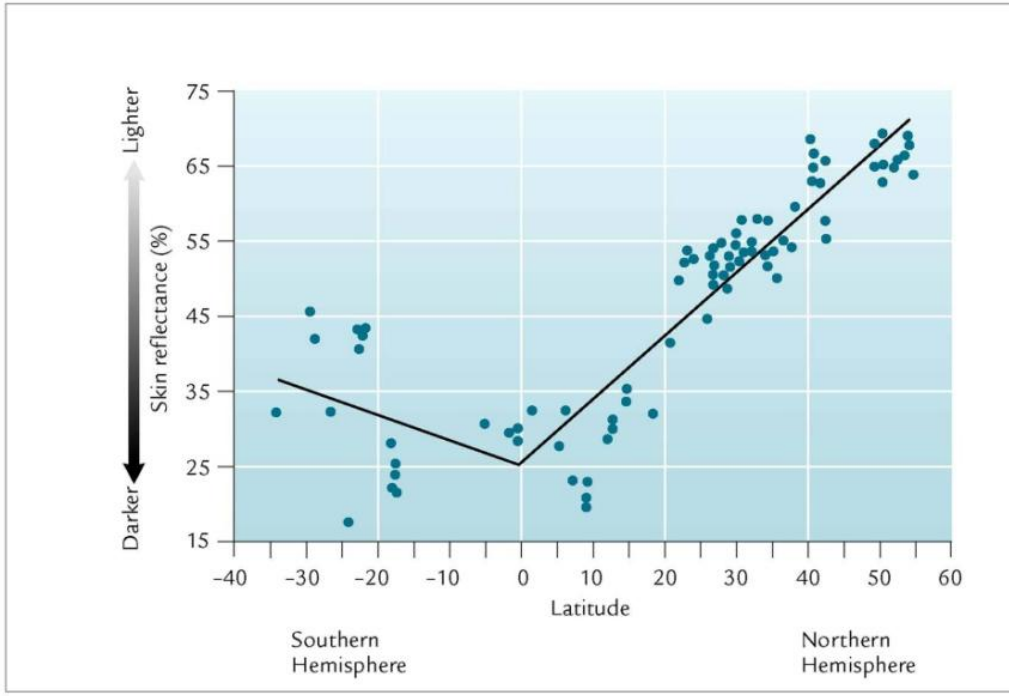
Storia della nostra specie e di altri ominidi
(origine, espansioni, ibridazioni, divergenza...)



Caramelli, ...& Bertorelle, 2003, PNAS

Studi sull'evoluzione dell'uomo: alcuni esempi

13 Geographic Distribution of Human Skin Color



Adattamenti nelle popolazioni umane:
colore della pelle (melanina, raggi UV, vitamina D3, geni tra cui MC1R, differenze tra Africani e Europei)

Studi sull'evoluzione dell'uomo: alcuni esempi

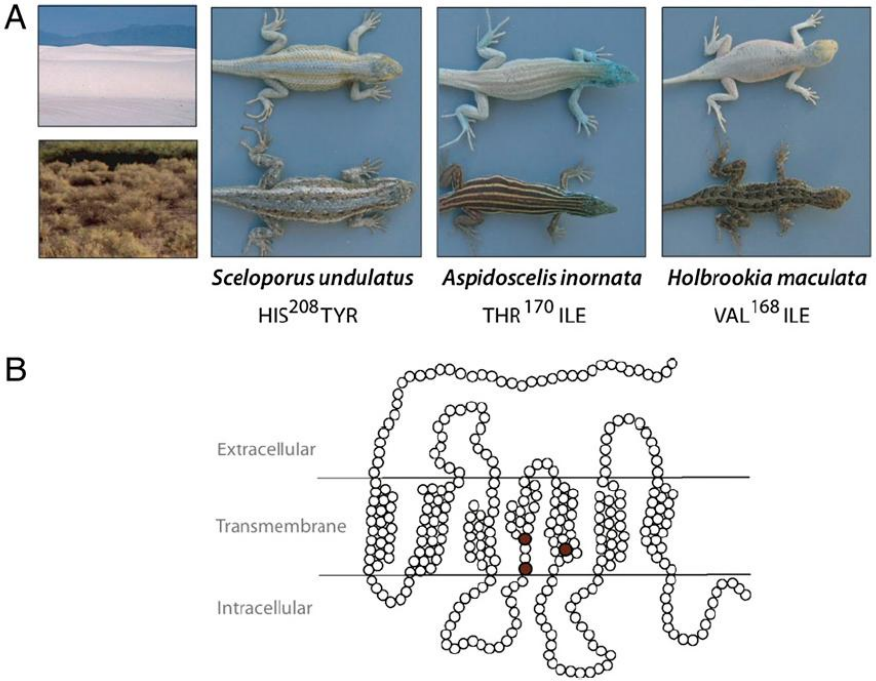
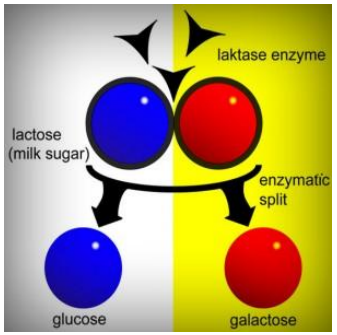
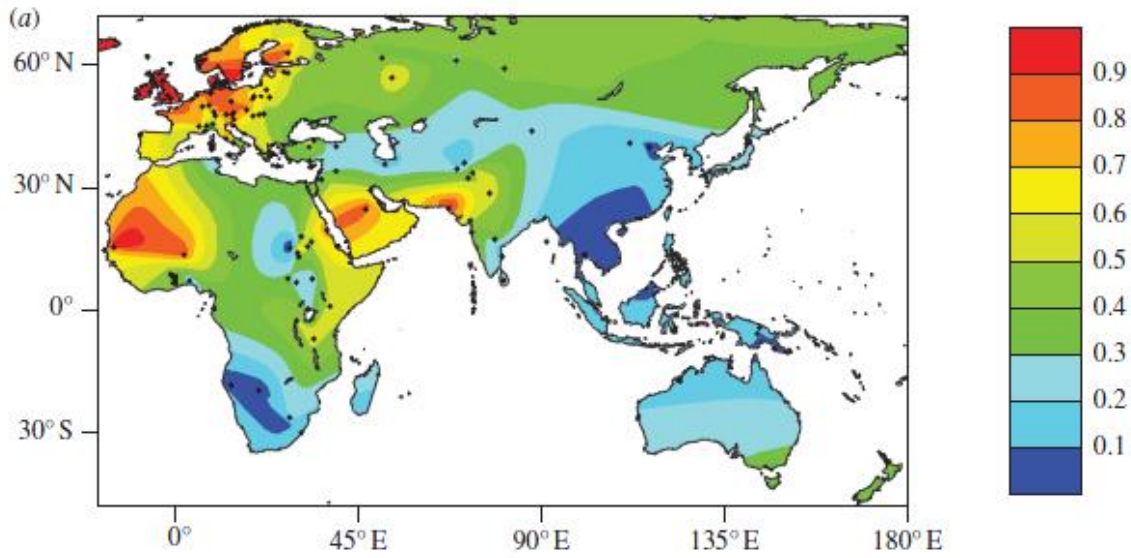


Fig. 1. Mutations associated with blanched coloration in White Sands lizards. (*A*) Blanched morphs from white sands on top and dark morphs in ancestral dark soil habitat on bottom. (*B*) Amino acid schematic of the melanocortin-1 receptor (Mc1r); replacements statistically associated with coloration in the focal taxa are shown in red.

Rosenblum et al., 2010, PNAS

Studi sull'evoluzione dell'uomo: alcuni esempi





Adattamenti nelle popolazioni umane:

persistenza della lattasi (domesticazione bovini, pastoralismo, tolleranza al lattosio in età adulta, gene LCT, coevoluzione bovini-uomo, convergenza in Europa e Africa ...)

Studi sull'evoluzione dell'uomo: alcuni esempi

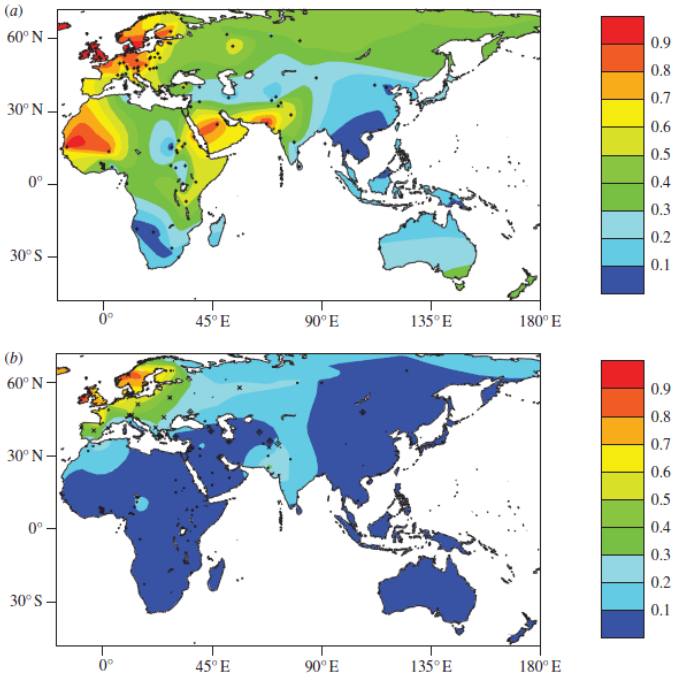
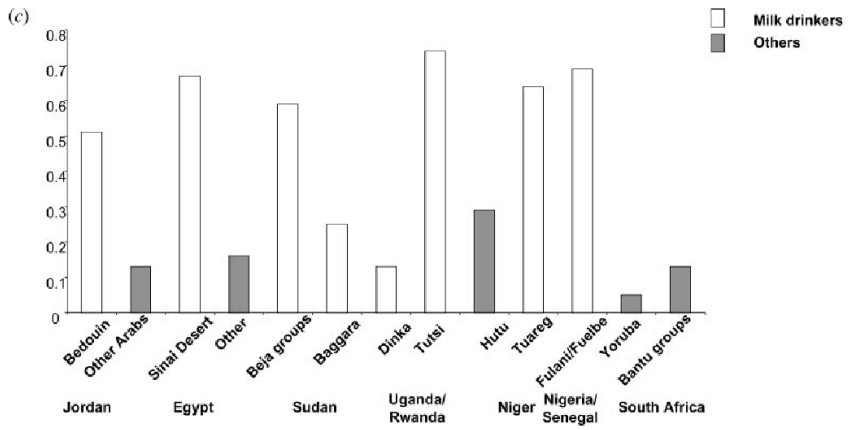


Figure 1. Interpolated maps of the distribution of LP and the *−13910*T* allele in the 'old world'. (*a*) LP phenotype distribution. Data points (dots) were taken from the literature (see text and [14] for details). (*b*) Distribution of the allele *−13910*T*, associated to LP. Dots represent sample data taken from a previous review [14,26–30]; crosses represent data for new locations not previously tested and diamonds correspond to locations where additional data have been added. Regularly updated frequency data are available at http://www.ucl.ac.uk//mace-lab/GLAD/ website.



Adattamenti nelle popolazioni umane:

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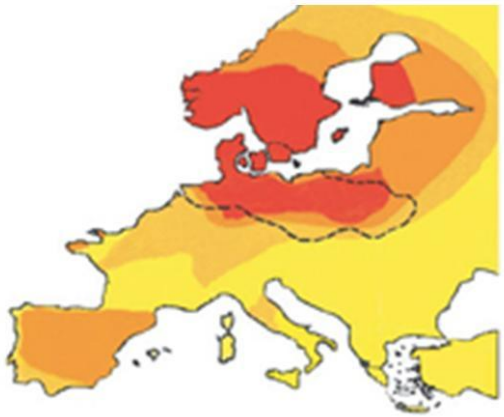
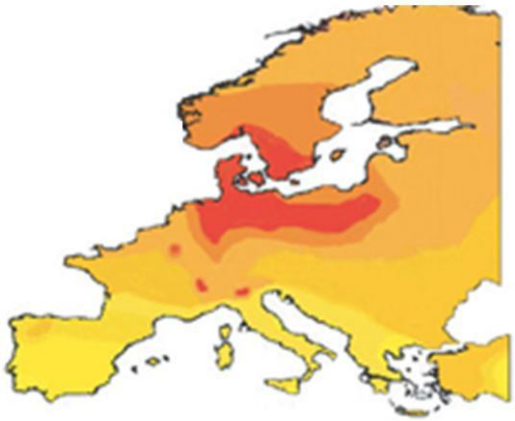
Gerbault et al., 2011, PRSB

Studi sull'evoluzione dell'uomo: alcuni esempi

human lactase persistance



genetic diversity in cattle



Beja-Pereira, ...Bertorelle, et al. 2003. Nature Genetics

Adattamenti nelle popolazioni umane:
persistenza della lattasi (domesticazione bovini, pastoralismo, tolleranza al lattosio in età adulta, gene LCT, coevoluzione bovini-uomo, convergenza in Europa e Africa ...)

Studi sull'evoluzione dell'uomo: alcuni esempi

io9 WE COME FROM THE FUTURE TOP STORIES

PALEONTOLOGY

Paleontologists discover what Neanderthal fashion looked like 44 thousand years ago

A Neanderthal burial site in Italy reveals hundreds of bird bones mixed in with those of our hominid cousins. The bones had the feathers scraped off, as though the Neanderthals had removed them on purpose - and the only plausible reason they would do that is to wear the feathers. It's more

Evoluzione di comportamenti complessi: linguaggio simbolico

Peresani et al, PNAS 2011

Studi sull'evoluzione dell'uomo: alcuni esempi

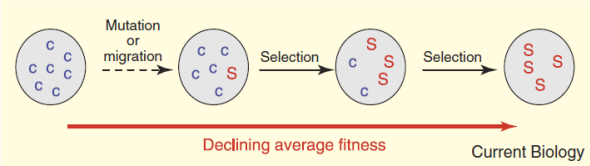
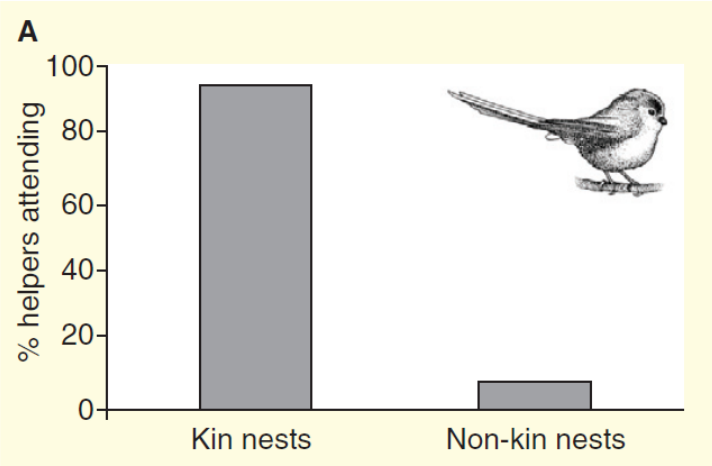


Figure 1. The problem of cooperation.

In the absence of one of the mechanisms discussed in this review, natural selection favours selfish individuals who do not cooperate. Consider a population of cooperators ('C') in which an uncooperative, selfish cheater ('S') arises through mutation or migration. In a mixed population, the selfish cheater benefits from the cooperative behaviour of the cooperators, without paying the cost. Consequently, the selfish cheater has a higher fitness than the cooperators and spreads through the population, despite the fact that this leads to a decline in mean fitness. (Redrawn after [104].)



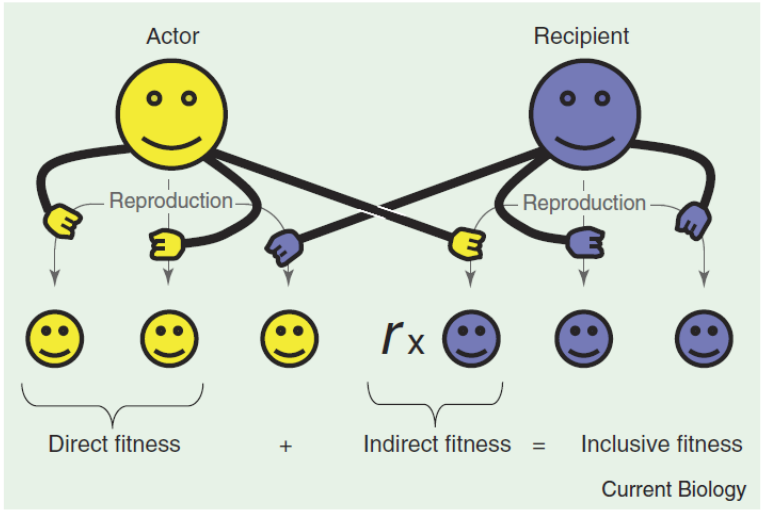


Figure 3. Inclusive fitness and cooperation.

Inclusive fitness is the sum of direct and indirect fitness [2]. Social behaviours affect the reproductive success of self and others. The impact of the actor's behaviour (yellow hands) on its reproductive success (yellow offspring) is the direct fitness effect. The impact of the actor's behaviour (yellow hands) on the reproductive success of social partners (blue offspring), weighted by the relatedness (*r*) of the actor to the recipient, is the indirect fitness effect. Inclusive fitness does not include all of the reproductive success of relatives (blue offspring), only that which is due to the behaviour of the actor (yellow hands). Also, inclusive fitness does not include all of the reproductive success of the actor (yellow offspring), only that which is due to its own behaviour (yellow hands).

West et al., Curr Biol, 2007

Evoluzione di comportamenti complessi: cooperazione, moralità, altruismo...

Studi sull'evoluzione dell'uomo: alcuni esempi

Does evolution explain human nature?

La teoria moderna dell'evoluzione ci aiuta spiegare i complessi schemi del comportamento umano, le emozioni, la cooperazione, l'altruismo, le religioni, la morale, la coscienza, il libero arbitrio? E quanto invece dipende dalla complessa cultura e socialità della nostra specie che ci fa diventare quello che siamo?

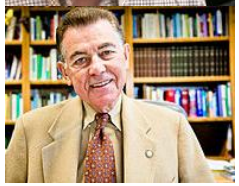
E quanto la nostra risposta dipende dalla nostra «spiritualità»?



Nel bicentenario della nascita di CD, un dibattito tra scienziati

Yes! Frans de Waal. Primatologo
Not entirely. Francis Collins. Genetista
More fully. Geoffrey Miller. Psicologo e biologo
Not yet. Joan Roughgarden. Biologa
Yes. Robert Wright. Giornalista scientifico
Up to a point. Francisco Ayala. Biologo





Does evolution explain human nature?

JOHN TEMPLETON FOUNDATION

SUPPORTING SCIENCE - INVESTING IN THE BIG QUESTIONS

The John Templeton Foundation serves as a philanthropic catalyst for research on what scientists and philosophers call the Big Questions. We support work at the world's top universities in such fields as theoretical physics, cosmology, evolutionary biology, cognitive science, and social science relating to love, forgiveness, creativity, purpose, and the nature and origin of religious belief. We encourage informed, open-minded dialogue between scientists and theologians as they apply themselves to the most profound issues in their particular disciplines. And we seek to stimulate new thinking about wealth creation in the developing world, character education in schools and universities, and programs for cultivating the talents of gifted children.

The Big Question posed in these pages celebrates the bicentenary of the birth of Charles Darwin, the founding genius of modern biology. We have focused on the long-standing debate over how well the theory of evolution can explain human nature—a subject of heated contention in Darwin's day as in our own. An important new aspect of the discussion, as many of our essayists emphasize, is the transformation that evolutionary theory itself has undergone in recent decades. Researchers have concluded that natural selection helps to explain the development of a range of human emotions, behaviors, and capacities—and not just the stereotypically "selfish" ones. Evolutionary theory has become a powerful tool in trying to understand such traits as altruism, cooperation, religious belief, and moral commitment. But is it sufficient for a full understanding of these human qualities? And does evolutionary theory illuminate such intractably difficult subjects as human consciousness, free will, and spirituality?

This booklet neatly embodies the approach that we take to the Big Questions across all of the Foundation's areas of interest. The contributors are distinguished scientists and scholars, they address a perennial

and much-disputed subject, and they bring to bear—in civil, elegant prose—a range of different perspectives. By assembling this "conversation" and inviting the public to join in, we intend to spark a discussion that transcends the familiar positions usually found in such debates. We aim to turn discourse on the Big Questions in a more thoughtful, considered direction. It is our hope that this booklet will be a lasting resource for students, teachers, parents, political leaders, scientists, clergy, and anyone else engaged with the great issues of human nature and purpose. Additional copies of the booklet can be ordered by writing to bigquestions@templeton.org.

Four previous conversations on Big Questions at the core of the Foundation's mandate may also be of interest to readers. They can be found online at the following addresses:

Does the universe have a purpose?
www.templeton.org/purpose

Will money solve Africa's development problems?
www.templeton.org/africa

Does science make belief in God obsolete?
www.templeton.org/belief

Does the free market corrode moral character?
www.templeton.org/market