

## EDITORIAL

# The cost of superficial values in a life-threatening pandemic: How globalization grates against evolution...

In this issue, Paola Bressan<sup>[1]</sup> presents an interesting facet of what I will call “pathoethology”—the way in which we react behaviourally to potential transmission of disease-causing agents from others of our species. Essentially, a stranger, and particularly someone outside our ethnic group (if you will forgive me for using that short-hand) triggers greater avoidance behaviour when showing signs of potential illness than someone who is familiar to us, particularly someone within our ethnic group. I won't steal more of the thunder of this intriguing article: it certainly deserves to be read—and not least because of its implications in times of COVID. But I will speculate on a curious matter that occurs to me nevertheless on reading the article.

It is clear that people whose ancestors have lived for evolutionary time-scales in particular parts of the world have particular variants of MHC genes (Major Histocompatibility Complex genes, which code for the Human Leukocyte Antigen proteins, and hence influence immune response to pathogens). The reason is obvious: evolution in the presence of different resident pathogens—particularly parasites. The differences are anything but random, and a person whose ancestors have lived up till the very recent past in Africa will most certainly have reliably different MHC gene variants from someone of Eurasian ancestry. Now for the more interesting part: research has long since suggested that in the search for a mate, humans tend to prefer carriers of MHCs that are further from their own than those of their immediate “ethnic” or “geographical” group. Not surprisingly, something as complicated as human behaviour is not simplistically amenable to modelling by findings from rodents; and the picture is compounded further by disparate human study sizes and designs and widely differing cultural contexts. A finding that nevertheless seems to be gaining weight is that confounding behaviours seem to be at play: whereas odour preferences tend to co-segregate with differences in MHCs, facial attractiveness tends to co-segregate rather with MHC-similarity (as reviewed in<sup>[2]</sup>). You can probably come to your own conclusions about what that means in terms of long-term family-rearing relationships compared with briefer encounters, regardless of whether these are procreational or not. More pertinently, is the link between facial attractiveness and MHC-similarity at play in the phenomenon that Bressan describes? Are

the faces of “ethnic strangers” telling us something about immune systems that react to challenges in importantly different ways from ours?

The face is clearly a very important proxy for perceived health, and Bressan describes persuasive research in this regard. Regardless of our social persuasions, beliefs and feelings of equality, and regardless of our own “ethnicity,” we on average tend to be less “immediately open” to a genetically dissimilar face than one that is much closer to our own—and even less so if the other face looks a bit “sick.” Does this make biological sense on any level or time-scale, or is it a construct of human social evolution? Taking an extreme case, if someone with dissimilar MHCs to ours is sick, it could be a sign that we really do not want to get that particular bug, because our immune system has not evolved to deal with it well, and we will become even sicker than the stranger: a case in point is the poor South American indigenous peoples who did not realize that a sneezing Conquistador was their death sentence. They had never encountered the European common cold virus. The final irony in this story is, as Bressan writes, “...individuals are more likely to infect, and be infected by, strangers who are not even community members but just look similar to them, with evident potential repercussions on contagion patterns—an example being at the start of the COVID-19 outbreak in the USA, when white Americans were less guarded toward (potentially infected) white European tourists than toward healthy fellow Americans of African extraction.” Social evolution, though potentially faster than biological evolution, has not come as far as it should. We have seen this in race riots against social injustice numerous times; now, curiously enough, we see it in the context of a biological threat. If ever there were a time when communities need to re-evaluate superficial differences, and concentrate on common principles, this is it...

Andrew Moore, Editor-in-Chief

## REFERENCES

1. Bressan, P. (2021). Strangers look sicker (with implications in times of COVID-19). *BioEssays*, 43, 2000158.
2. Havlicek, J., & Roberts, S. C. (2009). MHC-correlated mate choice in humans: A review. *Psychoneuroendocrinology*, 34(4), 497–512 <https://doi.org/10.1016/j.psyneuen.2008.10.007>