

ESSAYS ON HUMAN GENETICS

Dr hab. inż. Paweł Sachadyn

Katedra Biotechnologii Molekularnej i Mikrobiologii

Wydział Chemiczny

Politechnika Gdańska

pawel.sachadyn@pg.edu.pl

Abstract:

SYNOPSIS: "Make the trip of your life – the cruise around the human genome"

The lecture provides the fundamental knowledge on human genome and communicates the cutting-edge discoveries in

human genetics. Beside presenting the essential information on genome structure, the inheritance of mental traits and the

genetic variation in drug response, the lecture discusses as fundamental questions as the genetic basis of humanity and

the Neanderthal contribution to the modern human genome. The idea of the lecture is not to provide a complete course of

human genetics but to focus on the key questions of modern genetics.

A mutation in the MC1R mutation gene associated with fair complexion and red hair of the Neanderthal man.

A) Neanderthal child' s face reconstruction

B) Arg307Gly mutation in the melanocortin receptor 1 gene (MC1R) associated with the fair complexion and red hair of

Neanderthal man. The variant of the Neanderthal MC1R has not been detected in the modern man where other mutations

Arg151Cys and Arg160Trp are responsible for red hair. (Carles Lalueza-Fox et al. (2007) Pigmentation Among

Neanderthals A Melanocortin 1 Receptor Allele Suggests Varying, Science 318, 1453).

LECTURE PROGRAMME

1. Human genome – what makes us human?
2. Maternal inheritance and paternal leakage – mtDNA.
3. What makes us males: Y-chromosome?
4. What makes us women: X–chromosome.
5. Neanderthal grandfathers – Neanderthal contribution to the modern human genome.
6. Mendelian and non-Mendelian inheritance.
7. Lights and shadows of mutations.
8. Eye colour and multigenic traits.
9. Maternal care and suicide risk - epigenetic inheritance.
10. Somatic mosaicism in healthy human tissues - the plasticity of human genome.
11. Your genome in a few minutes? Next generation DNA sequencing.
12. Correcting genetic errors: gene therapy.
13. Genes and mind.
14. From genes to drugs.
15. Regenerative medicine – beyond the limitations.

Termin	Dzień tygodnia	Godzina	Miejsce
22.01.2018	Poniedziałek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
23.01.2018	Wtorek	16.15 – 19.00	Minicentrum Konferencyjne (Luwr)
24.01.2018	Środa	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
25.01.2018	Czwartek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
26.01.2018	Piątek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)