EuroSciCon

8th Edition of International Conference on

Infectious Diseases

June 07-08, 2018
London, UK

Catherine K. Derow, J Prev Infect Cntrol 2018, Volume 4
DOI: 10.21767/2471-9668-C1-002

CAPITALIZING ON GENOMIC/PROTEOMIC DATA TO TREAT AND CURE INFECTIOUS DISEASES BY BRINGING IN TO PLAY OUR KNOWLEDGE REGARDING NATURALLY OCCURRING INFECTIOUS DISEASE RESISTANT GENOTYPES/PHENOTYPES AND GENE THERAPY

Catherine K. Derow
Catherine Kari Derow Ltd, UK

In the new age of genomics and proteomics we have abundant information on human genomics and the technology to manipulate DNA, the molecular basis of genotype and determinant of phenotype, although environment can impact on phenotype also. If we consider, for example, the natural immunity to malaria conferred by heterozygosity for the allele for sickle cell anemia or thallasemia, we could imagine a method for conferring immunity to malaria employing gene therapy and also perhaps capable of treating and curing a case of malaria. One could prepare bone marrow stem cells taken from the patient where the genotype had been manipulated employing CRISPR or other gene manipulating tools and then replace the manipulated cells in the bone marrow of the subject so that they express the sickle cell allele/thallasemia in the bone marrow to create the type of RBC with the phenotype that allows malaria resistance. This would confer immunity and indeed could it seems treat and cure an existing case of malaria. We can imagine conferring natural-type immunity to many other infectious diseases where such natural immunity can be found to exist. We could find the methods to create the required genotype of cells as well as the appropriate type of cell(s), and also method of delivery of the genetically manipulated cells, relevant to the infectious disease in question. This would harness the power of biologically-based immunity which may be more in tune with living systems than say some methods of providing immunity as well as, treating and curing infectious diseases.

Recent Publications

1. Co-expression module analysis reveals biological processes, genomic gain, and regulatory mechanisms associated with breast cancer progression. Shi Z, Derow CK, Zhang B, BMC Syst Biol. 2010 May 27;4:74. doi: 10.1186/1752-0509-4-7
2. The IntAct molecular interaction database in 2010. Aranda B, Achuthan P, Alam-Faruque Y, Armean I, Bridge A, Derow C, Feuermann M, Ghanbarian AT, Kerrien S, Khadake J, Kerssemakers J, Leroy C, Menden M, Michaut M, Montecchi-Palazzi L, Neuhauser SN, Orchard S, Perreau V, Roechert B, van Eijk K, Hermjakob H. Nucleic Acids Res. 2010 Jan; 38(Database issue):D525-31. doi: 10.1093/nar/gkp878. Epub 2009 Oct 22
3. MINT and IntAct contribute to the Second BioCreative challenge: serving the text-mining community with high quality molecular interaction data. Chatr-aryamontri A, Kerrien S, Khadake J, Orchard S, Ceol A, Licata L, Castagnoli L, Costa S, Derow C, Huntley R, Aranda B, Leroy C, Thorneycroft D, Apweiler R, Cesareni G, Hermjakob H. Genome Biol. 2008;9 Suppl 2:S5. doi: 10.1186/gb-2008-9-s2-s5. Epub 2008 Sep 1.
4. IntAct--open source resource for molecular interaction data. Kerrien S, Alam-Faruque Y, Aranda B, Bancarz I, Bridge A, Derow C, Dimmer E, Feuermann M, Friedrichsen A, Huntley R, Kohler C, Khadake J, Leroy C, Liban A, Lieftink C, Montecchi-Palazzi L, Orchard S, Risse J, Robbe K, Roechert B, Thorneycroft D, Zhang Y, Apweiler R, Hermjakob H. Nucleic Acids Res. 2007 Jan;35(Database issue):D561-5. Epub 2006 Dec 1
5. Using a mammalian cell cycle simulation to interpret differential kinase inhibition in anti-tumour pharmaceutical development.Chassagnole C, Jackson RC, Hussain N, Bashir L, Derow C, Savin J, Fell DA. Biosystems. 2006 Feb-Mar;83(2-3):91-7. Epub 2005 Oct 19

Biography

Catherine K. Derow studied with the world leader in Systems Biology, Professor David Fell and other professors for her BSc in Cell and Molecular Biology. This was followed by work in industry on *in silico* drug development with respect to cancer and in the research sector at the European Bioinformatics Institute as a curator on the Intact database of molecular interactions. Catherine Derow has also worked in the commercial sector of competitive intelligence provision for Life Sciences companies; this was as an Associate at BiopharmaVantage Ltd. Catherine Derow has also worked on projects relating to nvestigations into the genetic basis of disease while a member of the bioinformatics team at Oxagen Ltd. Currently Catherine Derow is an independent researcher and has recently worked as a scientific expert for the EU.

cathykd@gmail.com