GENETICS

ENDING DECAY (AND SUFFERING)

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It sounds unbelievable – not only to me but also to the editors of Nature who needed half a year to publish a paper of (probably the first true) genetic treatment. Two high-throughput screens comprising ~800,000 low molecular weight compounds were needed to identify 3-[5-(2-fluorophenyl)-[1,2,4]oxadiazol-3-yl]-benzoic acid or PTC124 as inactivator of nonsense mediated mRNA decay that usually takes place after insertion of a UAA, UAG or UGA stop codon. Read-through may be a highly appreciated effect for example in Duchenne muscular dystrophy.
The only known substance so far with such an effect (but much lower potency and much higher toxicity) was gentamycin. Restoring of muscle function in DMD seems to already work with PTC124, heureka! My immediate concern, however, was unwanted read-through at normal stop codons at full length, or at normal stop codons at abbreviated length and possible loss of small RNA signalling. Some of these concerns are already addressed in the paper – hopefully there will be no unexpected side effects when using this substance as a treatment of many genetic diseases.

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