The Lutino

The lutino coloration is called a "p mutation" because of an integral membrane p protein. The p protein appears to be a transporter, however for exactly what remains unknown. Because high levels of tyrosine induce pigmentation in the eye’s melanocytes it would suggest this p protein plays a role in tyrosine transport. It does not only affect the eye but coat color as well. It is recessive (so P is normal and p is the mutation) and a rabbit that is pp will have the pink eyes and also the fur color changes.

In a sense, this mutation causes an effect similar to the non-extension gene, just to a less degree and with the addition of the pink eyes. This is due to the decreased production of eumelanin with yet little effect on pheomelanin. While there could be different variants, the basic orange colored lutinos are genetically A_B_C_D_eep. Cream colored lutinos (called “Shadow”) and are genetically A_B_C_D_E_pp. The p mutation can create other colors with different base genotypes.

This is not a "new" mutation. It is the one of the more common forms of albinism. The official name is type II oculocutaneous albinism. It is a Tyrosinase positive form. In mice, the protein product of this p locus’ first intraluminal loop was studied back in 1994. In mice, William Castle wrote about it in 1909. So as one can see, this has been a long studied mutation. However, we still have a lot to learn about exactly what this transport protein does and the exact mechanism by which it works.

2. Russell, ES. Genetics 34: 146 March 1949