BLURRING THE LINES: LEBER’S OPTIC ATROPHY

While Leber’s Optic Atrophy, or L.O.A., plays a central role in Blur, most people have never heard of it, let alone know how it is transmitted and who is susceptible to showing symptoms.

How Do You Know If You Have It?
Symptoms of L.O.A usually begin with blurring in one or both eyes. Even when only one eye is initially affected, the other eye is generally affected as well within a matter of weeks or months. Over time, vision worsens, often beginning with the loss of color vision and the ability to see fine details. This is when the sufferer may lose the ability to drive, read, or detect faces.
**How Do You Get It?**

L.O.A is only transmitted by women because it is inherited through the mother’s contribution to the child, the egg, specifically, the mitochondria of the embryo. Leber’s Optic Atrophy is an inherited disease passed on by a mother to all offspring. This means if a mother has L.O.A, her child does as well.

However, even though the child will have the disease, the child may not manifest symptoms, that is, she or he may be *asymptomatic*. The asymptomatic side of L.O.A is what makes it so confusing and dangerous, because many people do not know they’re carrying L.O.A at all. For instance, when a mother has AIDS, she may refrain from carrying her own children to reduce the risk of having an affected child, but if a mother does not know she is carrying a disease, she cannot take the same precautionary steps.

(For Bio majors: L.O.A is almost always caused by a “point mutation,” meaning one pair of the protein bases that make up the DNA is somehow altered. When protein bases pair to form DNA, Adenine pairs with Thymine, and Guanine pairs with Cytosine. A point mutation means one of the bases in one of these pairs is added, deleted, or substituted.)

**Why Is Dot’s Case So Rare?**

L.O.A affects *predominantly* young men. Mothers who carry L.O.A. have a 40% chance of having an affected son, and only a 10% chance of having an affected daughter. Also, more than 50% of males who have L.O.A. and over 85% of females who have L.O.A never lose their sight or even experience any related medical complications. This means a *minority* of L.O.A patients experience vision loss, and an even fewer fully lose their sight. Additionally, it is not terribly uncommon for L.O.A patients to partially recover their vision. The fact that Dot’s L.O.A affects her vision so completely is rare.

- Serena Kamlani