**Familial Partial Lipodystrophy, Dunnigan Variety**

Bradley University

**Preparation:** Prior to completing part 1

* 1. Watch the video titled “The DIY Scientist, the Olympian, and the Mutated Gene”: [https://youtu.be/qP04G\_3hoQ](https://youtu.be/qP04G_3hoQA)
* Optional: Read the personal story: [The DIY Scientist, the Olympian, and the Mutated Gene](https://www.propublica.org/article/muscular-dystrophy-patient-olympic-medalist-same-genetic-mutation)

**Part 1: Understanding FPL2**

|  |
| --- |
| ***Box 1: Storyline***  The video that you watched describes Jill Vile’s experience of identifying her own genetic disease (FPL2) and her individual struggles of living with it. To understand Jill’s life struggles and story, it is important to understand what familial partial lipodystrophy, Dunnigan variety (FPL2) is, what it is caused by, and the biomolecular makeup. |

Read about FPL2

1. <https://rarediseases.org/rare-diseases/familial-partial-lipodystrophy/>
   1. Read: Summary to FPL Type 2, Dunnigan Variety (FPL2) section under Signs and Symptoms.
   2. Read about the LMNA gene under subtitle Causes.

——————-

Please answer the following questions based on Jill’s personal story and the reading material provided:

Question 1. What is FPL2 and what causes the disease (hint: what happens with adipocyte cells, not the mutation?)?

Answer:

Question 2. What gene is affected? What protein does it encode?

Answer:

|  |
| --- |
| **Background Information: Types of Mutations**  *Silent* - A change in DNA that doesn’t alter the amino acid or the function of the overall protein.  *Nonsense* - A change in DNA that causes a protein to end (terminate) its translation earlier than expected.  *Missense* - A change in a single base pair that causes the substitution of a different amino acid in the resulting protein.  *Deletion* - Removal of nucleotides from a genome, may remove one nucleotide or multiple sequences of nucleotides.  *Insertion* - One or more base pairs are added to a gene, potentially altering amino acid sequence.  *Frameshift* - Caused by an insertion or deletion of a nucleotide base, that can alter amino acid sequences if occurring in the coding region. |

Question 3. We will be exploring a mutation of lamin A/C in the following exercises. What type of mutation is described in the article on FPL2 (e.g. deletion, insertion, etc.)?

Answer

Question 4. How did Jill discover her disease?

Answer: