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Image created is a fluorescence microscope image -
University of Alberta

Images of Research Competition
University of Alberta

Transition

Semi-finalist (2020)

You are looking into the depths of a colorful ensemble of a limb being formed. All these millions of cells are striving every day to help you move the way you do. This image is the snapshot of an ongoing limb developmental process where stem-cells give rise to cartilage cells that go through a series of developmental events to eventually form a layered organized structure known as the growth plate (red and green fluorescence). Cells in the distal end of the growth plate convert into an actively dividing state (red) before differentiating into large “hypertrophic” cells (green) which eventually form the bone. Numerous other simultaneous processes are working in parallel to make this possible. Any disruption in this highly complex mechanism, such as a genetic alteration can lead to various skeletal disorders ranging from a general reduction in skeletal size to early fetal death. Survivors will experience challenging mobility issues with limited therapeutic options due to a lack of understanding of the etiology of such hereditary skeletal disorders. My work focuses on exploring the gene regulatory network of bone development which will contribute to effective skeletal abnormality treatments that will give hope to all those families who are being challenged