

## **CB's Diverse Population of SCs**

**Producer: Christine McMurry, Cord Blood Registry, (415) 250-4440**

**Animator: XVIVO**

**February 2010**

	<p>STEM CELLS ARE THE “MASTER” CELLS OF THE BODY . . .THE BUILDING BLOCKS OF ORGANS AND TISSUE.</p>
	<p>THE UMBILICAL CORD ... AND THE BLOOD LEFT IN IT AT BIRTH ... CONTAIN A BROAD DIVERSITY OF PRISTINE NEWBORN STEM CELLS THAT HAVE DEMONSTRATED THE ABILITY TO HELP OTHER TISSUES AND ORGANS HEAL THEMSELVES AFTER INJURY OR DISEASE.</p>
	<p>WHILE RESEARCHERS HAVE YET TO IDENTIFY EVERY TYPE OF NEWBORN STEM CELL, THEY HAVE ISOLATED SPECIFIC STEM CELLS THAT ARE THE BUILDING BLOCKS FOR OTHER CELLS AND ORGAN TISSUE THROUGHOUT THE BODY.</p>
	<p>HEMATOPOIETIC STEM CELLS, FOUND IN CORD BLOOD HAVE BEEN USED FOR 20 YEARS TO HELP REGENERATE THE BODY'S BLOOD AND IMMUNE SYSTEM, WHICH CAN BE DAMAGED BY THE INTENSE CHEMOTHERAPY USED TO KILL CANCEROUS CELLS.</p>
	<p>MESENCHYMAL STEM CELLS . . . FOUND PRIMARILY IN THE UMBILICAL CORD TISSUE ITSELF . . . HAVE THE ABILITY TO HELP FORM BONE OR CONNECTIVE TISSUES LIKE CARTILAGE AND LIGAMENTS.</p>
	<p>THESE NEWBORN STEM CELLS FROM THE UMBILICAL CORD AND CORD BLOOD HAVE DISTINCT BENEFITS COMPARED TO ADULT STEMS CELLS FROM BONE MARROW . . . THEY'RE YOUNGER . . .HAVE GREATER ABILITY TO MULTIPY . . . AND HAVE HAD MINIMAL EXPOSURE TO ENVIRONMENTAL FACTORS LIKE VIRUSES OR CHEMICALS THAT CAN INTERFERE WITH CELL</p>

	STRUCTURE AND FUNCTION.
	BUT WHAT REMAINS A QUESTION IS HOW NEWBORN STEM CELLS WORK TOGETHER TO HELP THE BODY HEAL. RESEARCHERS THEORIZE THAT THIS DIVERSE POPULATION OF CELLS FUNCTIONS LIKE AN SYMPHONY ... EACH TYPE OF CELL HAVING A DIFFERENT ROLE TO PERFORM IN HEALING DAMAGED TISSUE AND CELLS.
	CURRENT RESEARCH SUGGESTS THAT NEWBORN STEM CELLS HELP ORCHESTRATE A NATURAL REPAIR PROCESS . . . BY HELPING TO REDUCE INFLAMMATION ... STIMULATE THE GROWTH OF BLOOD VESSELS . . . IMPROVE BLOOD FLOW TO INJURED AREAS ... . . .AND ULTIMATELY ENABLING INJURED CELLS TO REPAIR THEMSELVES.

**CB's Diverse Population of SCs**

**Producer: Christine McMurry, Cord Blood Registry, (415) 250-4440**

**Animator: XVIVO**

**February 2010**