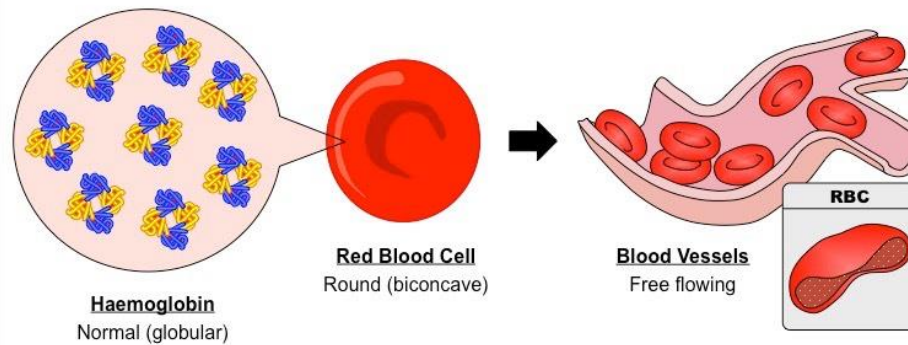


Understanding Hemoglobin and How to Stop the Sickling

Laboratory Research
Aisha L. Walker, PhD, MPH
Assistant Professor of Medicine

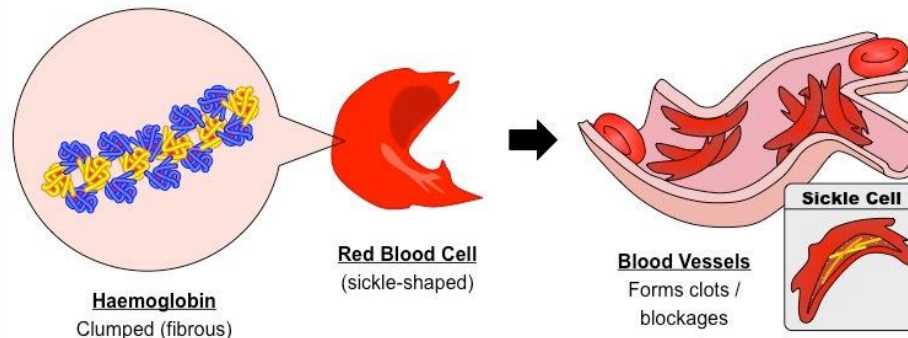
Adult Hemoglobin and Sickling

Adult hemoglobin A



HbA

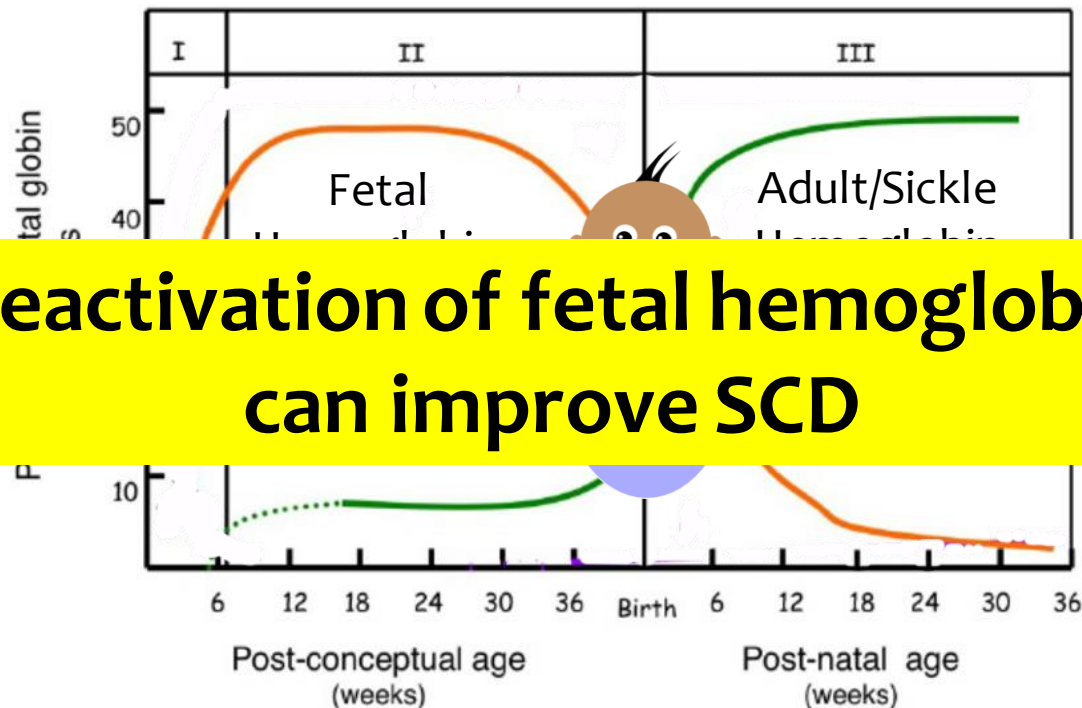
Adult hemoglobin S



HbS

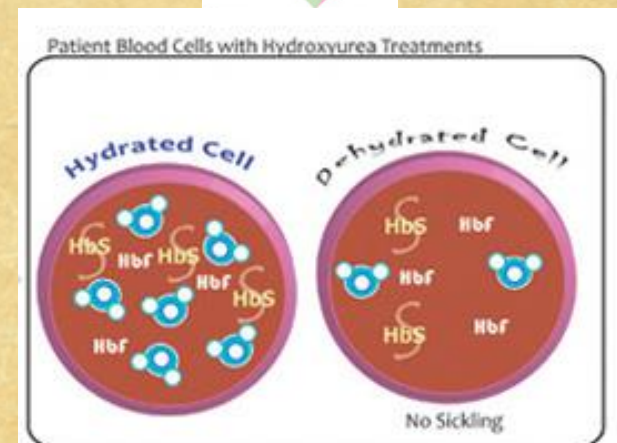
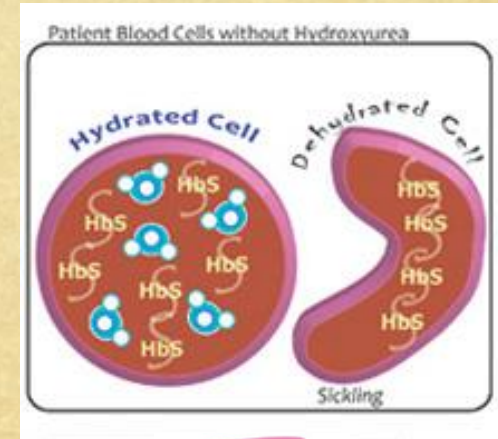
Fetal Hemoglobin

1. All people have fetal hemoglobin
2. Does not sickle
3. Can stop HbS from sickling
4. Only made in very young babies



Hydroxyurea (HU)

- ◆ Proven efficacious for reducing:
 - ◆ Major complications
 - ◆ Hospitalizations
 - ◆ Early mortality
- ◆ Works to improve hematological parameters
- ◆ The only FDA-approved drug for SCD that increases fetal hemoglobin



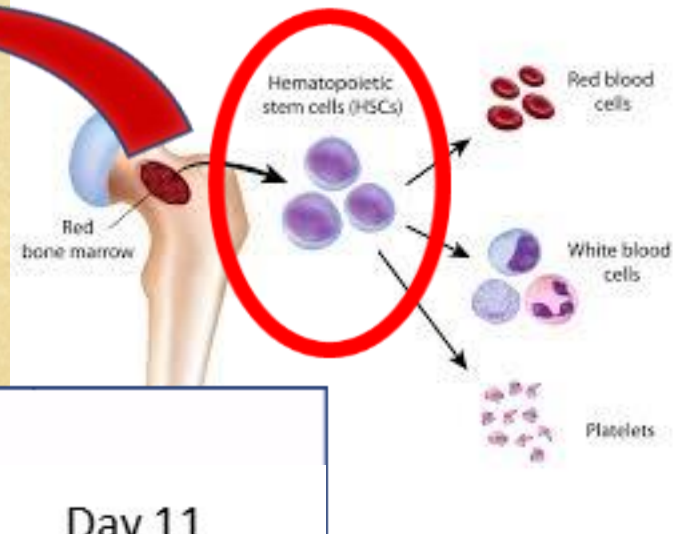
Laboratory Research Objectives

- ◆ Understand biological mechanisms involved in hemoglobin production
- ◆ Understand how drugs (like hydroxyurea) can increase fetal hemoglobin

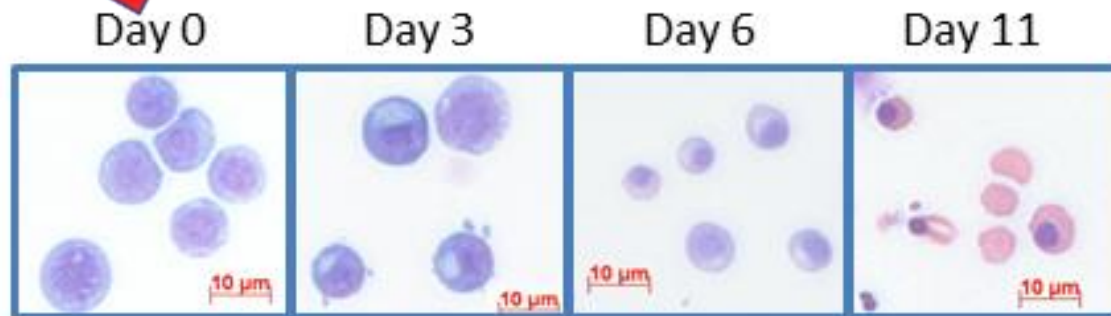
Ultimate Goal:

Develop new drugs and therapies to reactivate fetal hemoglobin and stop complications of SCD

Bone Marrow Stem Cells to Create Red Cells in the Lab



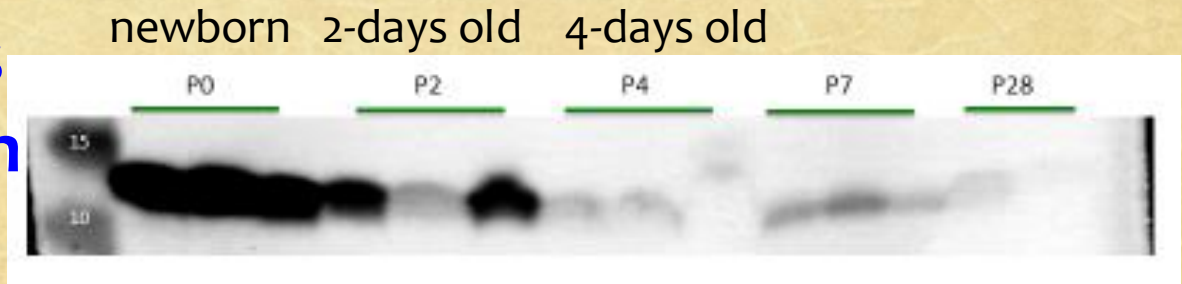
Human bone marrow stem cells



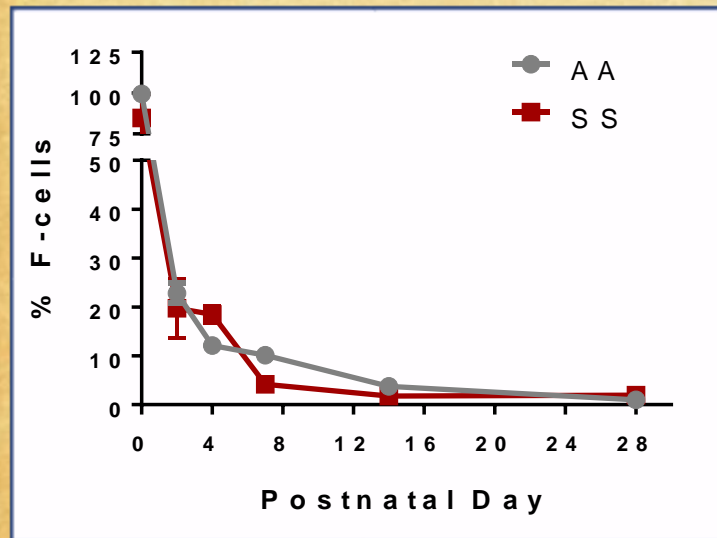
Investigate **Molecular Biology** mechanisms at different stages of red blood cell creation

Mouse with Human Blood and Sickle Cell

Mouse stem cells
Fetal Hemoglobin



Mouse Blood



Test new therapies to reactivate fetal hemoglobin

Using Facebook to Understand Patients' and Parents' Opinion of Hydroxyurea

Like

“My daughter been taking it since she was nine she turned fourteen on Tuesday. . . She hasn't been in the hospital since she been on it. Before hydro she couldn't play without a pain crisis . It's the best decision we made. She is a cheerleader for her school she cheers with no problems no pain”

Dislike

“I hate it personally cause it doesn't do anything for me but make my white counts low and make me sick. But for some people it really helps them a lot. Just not for me”

- Developed systematic and scientific approach to analyze Facebook posts (over 1000 posts)
- Understand feelings and perceptions among patients and parents

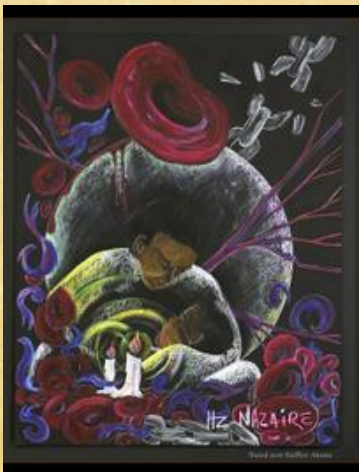
	#	%
Comments		
Personal Opinion		
Like	83	59
Neutral	18	13
Dislike	40	28
Total	141	100



Thank You



Purpose:
Help design interventions and find solutions to address the needs of the patients and families living with SCD



Hertz Nazaire