

# Assesment of SDF-1 and Ang-1 and Ang-2 in children with growth hormone deficiency before and after 1- year therapy with recombinant growth hormone



P1-P149/360

The authors have nothing to disclose.



<sup>1</sup>B.Sawicka, <sup>2</sup>M. Moniuszko, <sup>2</sup>K. Grubczak, <sup>2</sup>P. Singh, <sup>2</sup>U. Radzikowska, <sup>2</sup>P. Mikłasz, <sup>3</sup>M. Dąbrowska, <sup>1</sup>H. Borysewicz- Sańczyk, <sup>1</sup>A. Bossowski

<sup>1</sup>Department of Pediatrics Endocrinology, Diabetes with the Cardiology Division. Medical University in Białystok. Poland. <sup>2</sup>Department of Regenerative Medicine and Immune Regulation. Medical University in Białystok. Poland.

<sup>3</sup> Department of Hematology Diagnostic. Medical University in Białystok. Poland.

## Introduction

Angiopoietins are necessary for development, differentiation and stabilization vessels progress. Angiopoient 1 (Ang-1) is responsible for vascular integrity, through stimulation of endothelial cell migration and adhesion, and inhibition of apoptosis. Action of angiopoietin 2 (Ang-2), in the absence of VEGF it leads to vascular regression, but in the presence of high VEGF concentration it stimulates angiogenesis. Stromal derived factor (SDF-1) play an important role in stem cells mobilization from bone marrow to the peripheral blood, what increases as a result of tissue injury. During therapy recombinant growth hormone (rGH) in patients with growth hormone deficiency (GHD) supply of increasing growth factors and a lot of processes development of cells.

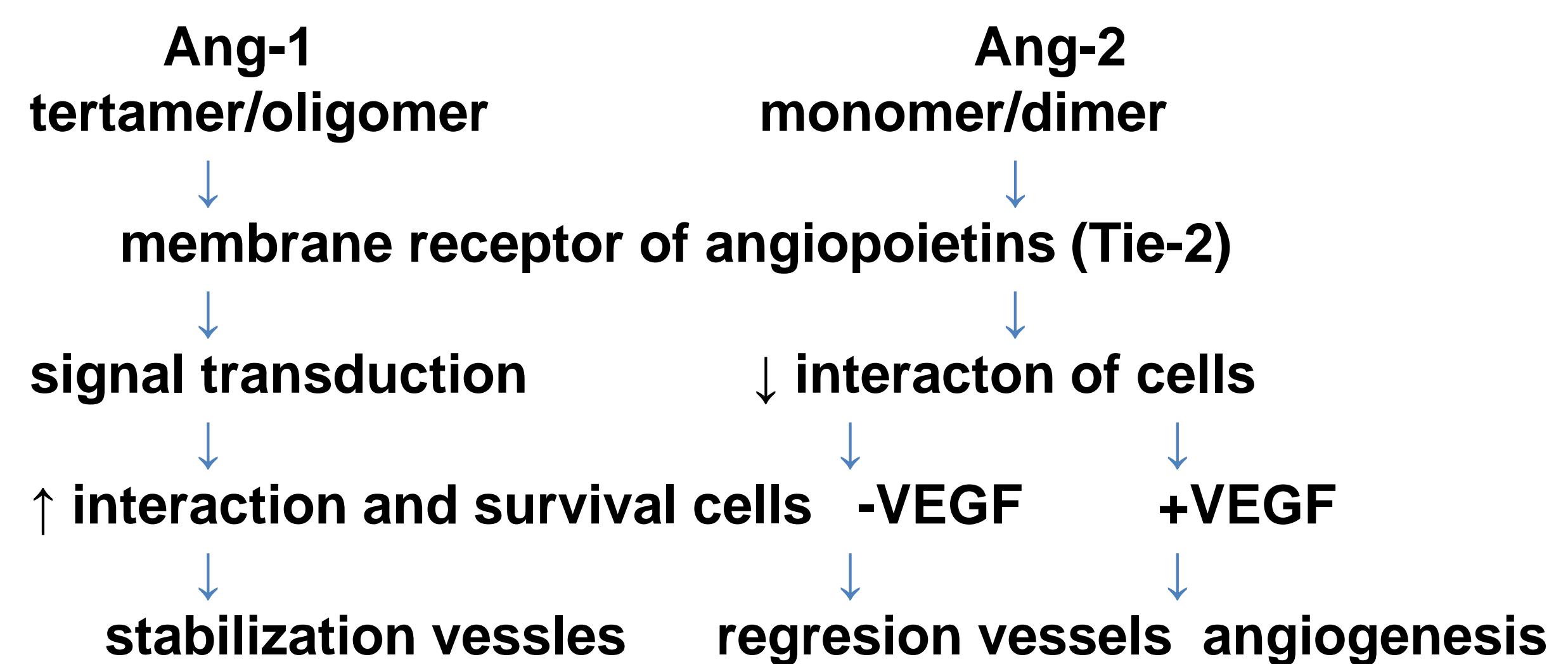
## Aim, materials and methods

The aim of the study was to estimate the concentration of angiopoietins 1 (Ang-1) and 2 (Ang-2) and stromal derived factor (SDF-1) in children with growth hormone deficiency before and after 1-year therapy with recombinant growth hormone. Anthropometric parameters (height, weight, BMI) and levels of angiopoietin (Ang-1 and Ang-2) and stromal derived factor (SDF-1) were measured in 32 children with GHD before and during GH therapy. The control group comprised 16 healthy, age and sex matched children. Ang-1, Ang-2 and SDF-1 levels were determined with ELISA.

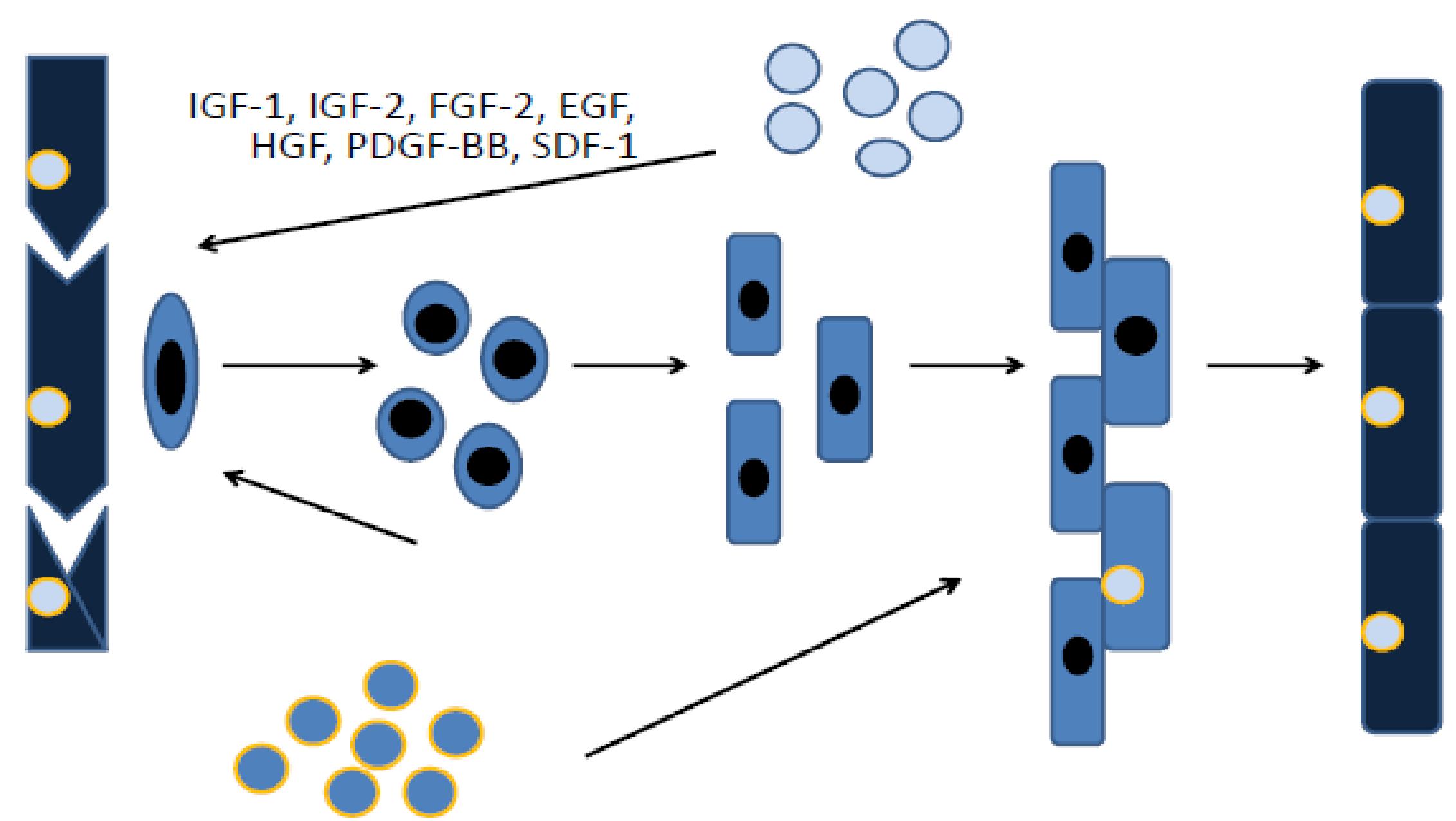
## Results

Comparing to control group SDF-1 level decreases statistically significant ( $p<0,05$ ) in the group with GHD and was demonstrated tendency to slightly decrease without statistical significance ( $p>0,05$ ) in group treated with GH. Without statistically significant correlations ( $p>0,05$ ) Ang-1 and Ang-2 decrease in group with GHD comparing to control group. Increasing levels of Ang-1 and Ang-2 (Ang2>Ang-1) was observed after 1-year therapy.

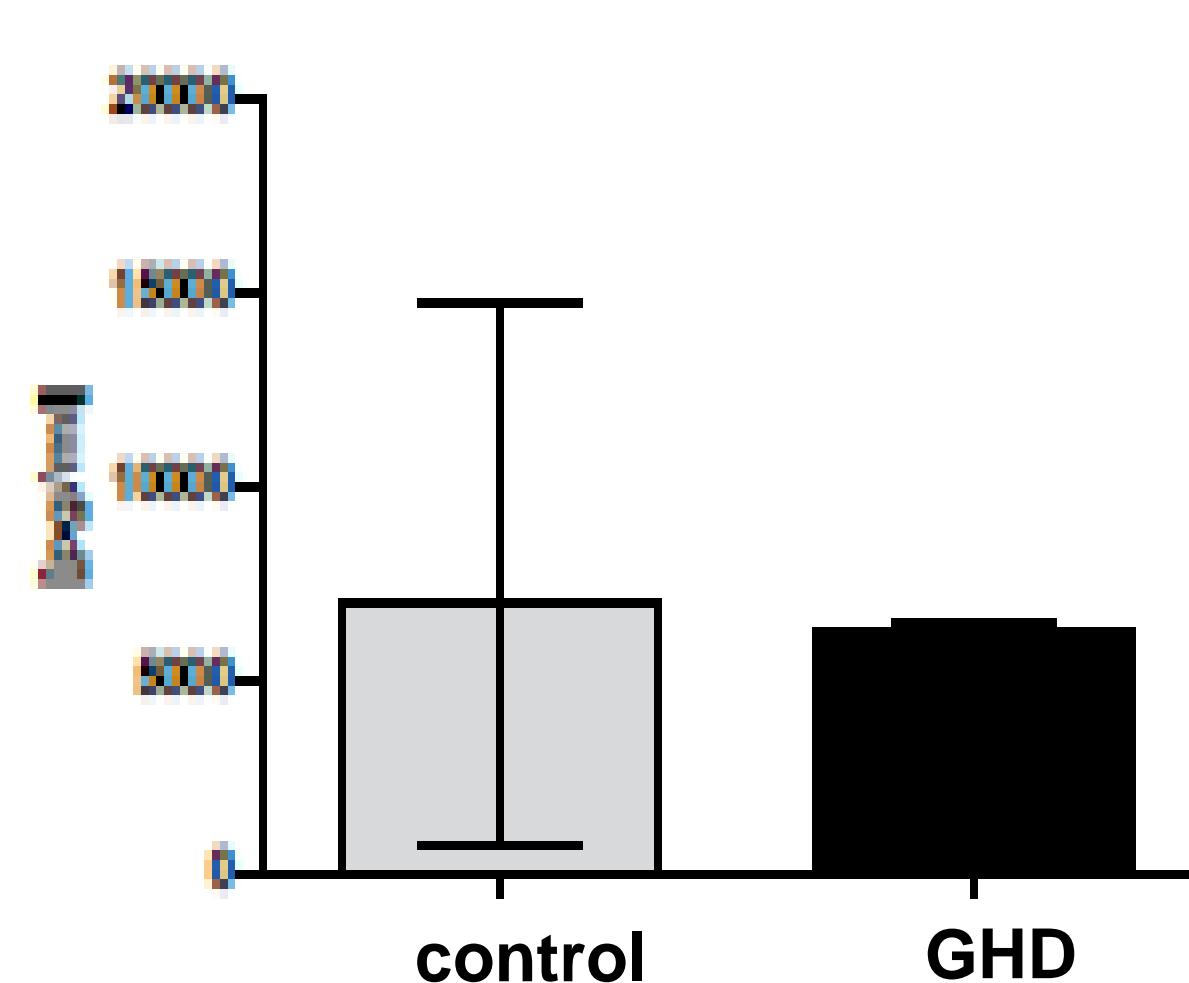
## Mechanism of angiopoietins' activity



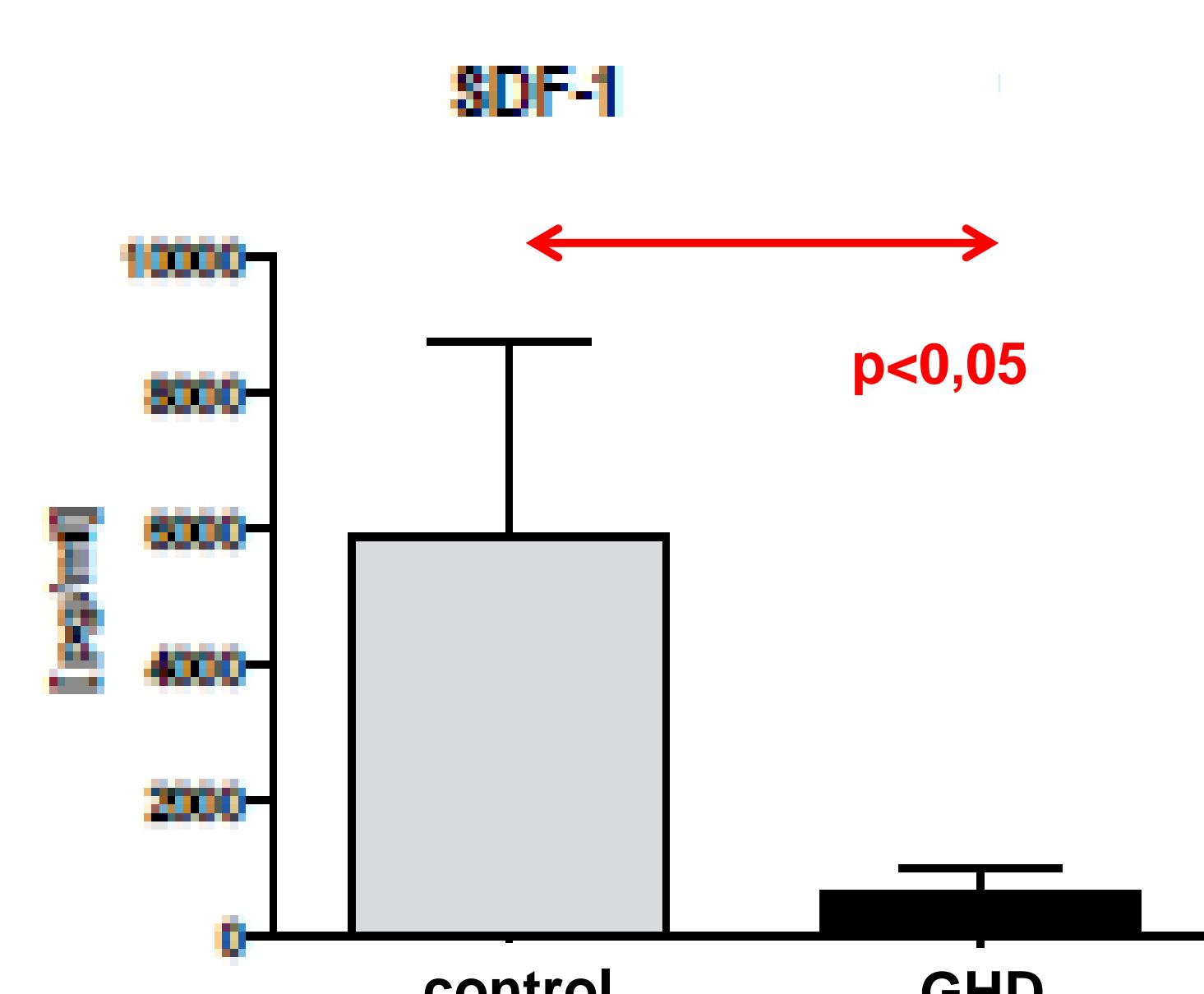
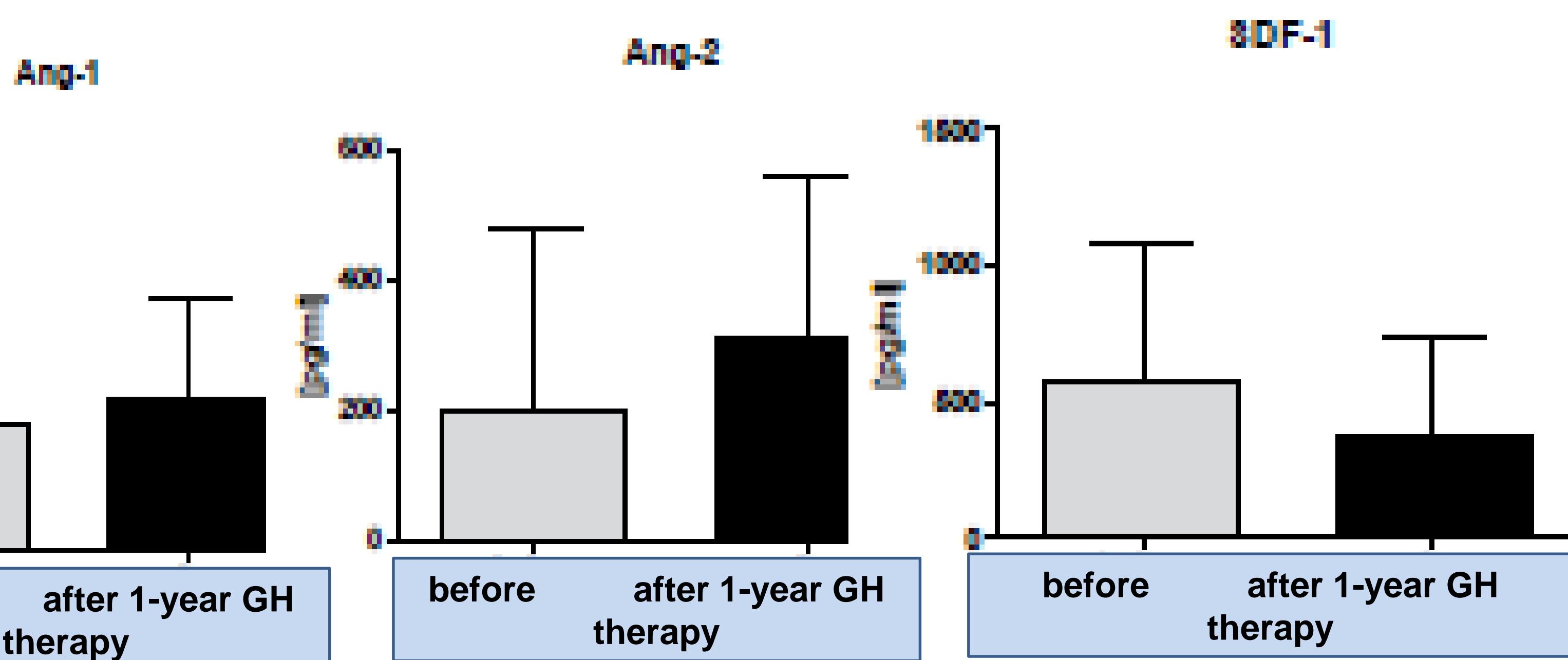
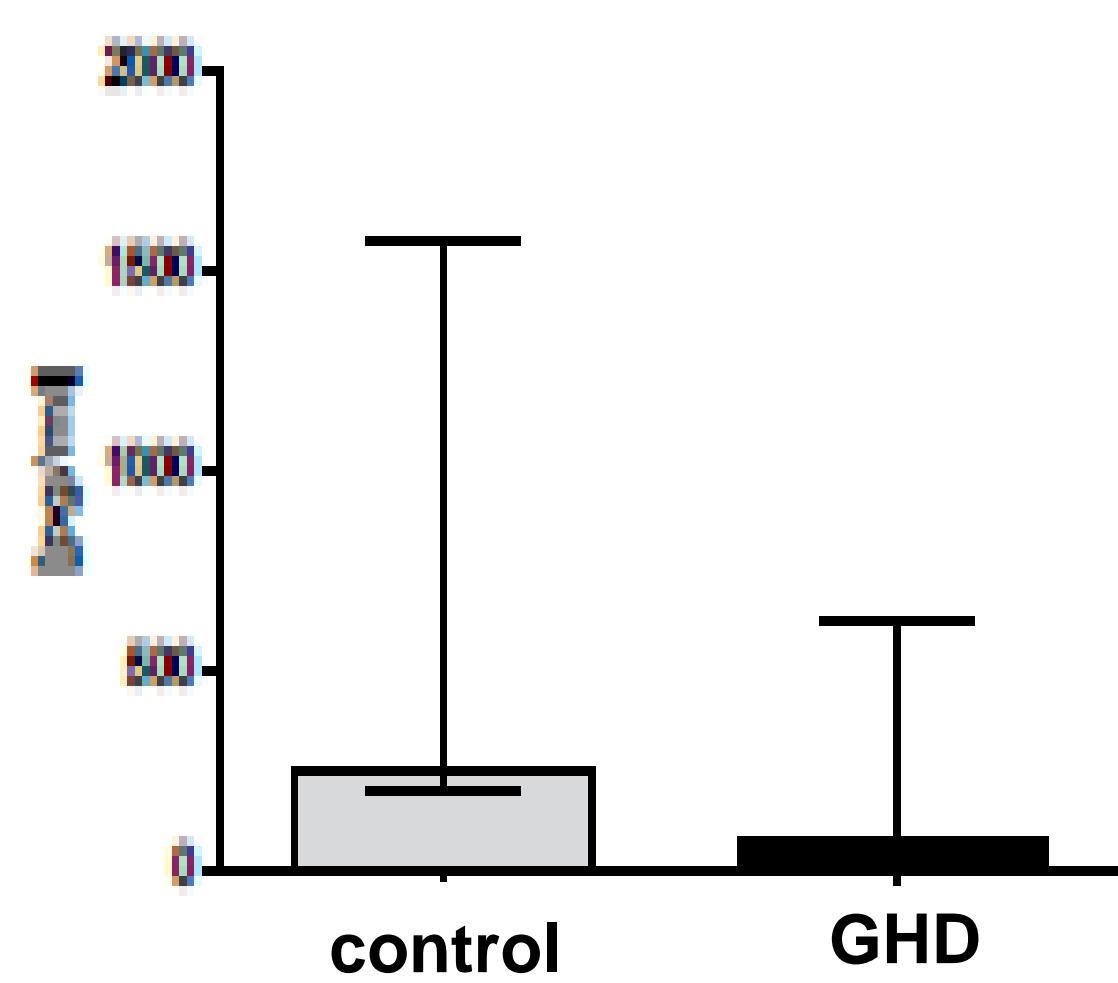
## Muscles regeneration



Ang-1



Ang-2



## Conclusions

In conclusion, GHD connect with decreasing stromal derived factor (SDF-1) and angiopoietin may play an important role in impaired regeneration and development new cells. SDF-1 could be monitoring of patients response to therapy with GH.