Abstract: RT PCR of Sox2 due to cancer stem cell investigation

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Introduction
Cancer stem cell (CSC) was first suggested about 150 years ago by Rudolf Virchow. According to this hypothesis, there are a few stem cells in cancer tissue responsible for initiating cancers and relapsing disease after therapeutic procedures. So these kinds of cells should be proven & detected by their specific markers first. Then, we can design particular therapies that efficiently target these cells to prevent relapse and metastasis. In the latter few years, this theory is completely in doubt in solid tumors. So, as the first step, we should use significant markers to testify this. One of these noticeable markers is Sox2. This transcription factor is highly expressed in stem cells, so up regulation of this in cancer tissue in comparison to normal tissue can be a reliable result to accept CSC theory. In this study, RT PCR is performed for confirming this theory.

Material and method
In the first step, we perform bioinformatics to design specific Sox2 primers. Then, the totals RNA were extracted from 10 breast cancer tissues and first strand of total cDNA synthesized by random hexamer. It is followed by amplification of Sox2 cDNA by specific primers. At last, our PCR products were observed on agarose gel & compared with GAPDH housekeeping gene.

Result
Products were loaded on the agarose gel and sharp bands were seen in 50°C to 60°C.

Conclusion
The certain and final results are under investigation but no significant overexpression have been detected up to now.