Response to Reviewer 1 Comments

**Point 1:** What was the rationale behind choosing downstream genes ARC and SIK1 in this study? How did the authors perform their "preliminary survey of target genes"? Did they also look at other targets?

**Response 1:** A long list of EGR1 target genes was provided by Duclot and Kabbaj (2017) based on an ENCODE dataset of ChIP experiments, and a set of these genes are under investigation in our laboratory. We wanted to analyze this set of genes in a HEK293T cell line using a qPCR approach after iper-expressing full-length EGR1. This preliminary check was done because genes transcriptionally regulated by EGR1 can be different in various cell types and under different conditions. Among the target genes analyzed were ARC, SIK1, P35, ATF3, APOE, BAX, P73, and C6ORF176. We better explain our rationale by introducing the following sentences in the text of the Results section: ” We planned iper-expression experiments for both the canonical and alternative isoforms and qPCR assays on putative target genes. Based on the list of EGR1 target genes provided by Duclot and Kabbaj [10], we choose several genes to be tested in a preliminary survey to identify suitable candidate genes capable of responding to EGR1 activity under our experimental conditions. These genes included Activity regulated cytoskeleton associated protein (ARC), Salt inducible kinase 1 (SIK1), Cyclin-dependent kinase 5 activator 1 (P35), Activating transcription factor 3 (ATF3), Apolipoprotein E (APOE), BCL2 associated X apoptosis regulator (BAX), Tumor protein P73 (P73), and C6ORF176. Based on qPCR analysis after EGR1 iper-expression experiments in HEK293T cells, we selected two genes that increased their expression level only in the presence of EGR1 expressing vector and not in the presence of an empty vector (data not shown): ARC and SIK1.”

**Point 2: Figure 1B is referenced twice**

**Response 2:** The correction has been done.

**Point 3:** Check for abbreviations and their explanation in the text: e.g. page 3, line 87: "CDS"

**Response 3:** We have checked all abbreviations and any missing explanations have been included in the text.

**Point 4:** page 2 line 80: the mRNA sequence ist referenced (NM_001964.2) but it appears to be in a different format than the rest of the text

**Response 4:** The correction has been done