

## Expression of lens-related microRNAs in transparent infant lenses and congenital cataract.

Wu CR<sup>1</sup>, Ye M<sup>2</sup>, Qin L<sup>1</sup>, Yin Y<sup>3</sup>, Pei C<sup>1</sup>.

### **Abstract**

#### **AIM:**

To identify the expression of lens-related microRNAs (miRNAs) in the central epithelium of transparent infant lenses and congenital cataract.

#### **METHODS:**

Lens-related miRNAs were retrieved from PubMed database. The expression levels of these miRNAs in transparent infant lenses and congenital cataract were determined by stem-loop reverse transcription-polymerase chain reaction (RT-PCR). miRanda algorithm was used to predict the target genes of these differentially expressed miRNAs. The target mRNA was validated.

#### **RESULTS:**

Six lens-related miRNAs were retrieved from screening PubMed database. The most abundant miRNA in transparent infant lenses according to stem-loop RT-PCR was miR-184. miR-182 was up-regulated in congenital cataract. Contrarily, miR-204 and miR-124 was down-regulated. miR-204 exhibited a more significant decrease in expression than miR-124. In addition, Meis2 was predicted to be the target of miR-204 using miRanda algorithm. miR-204 mimic/antagomir transfection experiments suggested the negative correlation between the expression of miR-204 and Meis2.

#### **CONCLUSION:**

The expression levels of miR-182, miR-204 and miR-124 differ between the central epithelium of transparent infant lens and congenital cataract, suggesting their involvement in the pathogenesis of congenital cataract. miR-204 may act *via* silencing Meis2 to regulate lens development and congenital cataract formation.

#### **KEYWORDS:**

Meis2; congenital cataract; lens-related miRNAs; miR-204