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Circular RNA as a new type of biomarker in the screening and detection cancer.

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Introduction

Circular RNA (circRNA) as new endogenous RNA that recently discovered and represent a recent research hotspot in RNA Biology. circRNA is a covalently form RNA that special feature of circRNA non conical splicing without a free 3′ and 5′ end [1]. CircRNA first detection in RNA viruses as early as the 1970 [2]. CircRNA a large noncoding RNA of expression in tissue. Indeed, their possible as a main gene control, also circRNAs are associated many disorder, such as atherosclerosis and nervous system and now important problem in all the world relation with cancer. According to research, CircRNAs are a stable molecule, probably because their shortage an open end. In this review, we discuss circRNA and disease. First, we focus on tool that use for identify outstanding CircRNA. Second, we present disease relationship with CircRNA.specifically, we review CircRNA as biomarker, drug target and therapeutic agent [3].

ASSORTMENT CIRCRNA AND BIOANFORMATIC TOOLS

According last research, we discuss about three known circRNA. First, Intronic circRNAs, intronic circRNA are created by connecting two or more introns which is very scarce in eukaryotic cells. Second, Exonic circRNA, exonic circRNA are produced by exon skipping, either in pre-mRNA splicing or in mature mRNA re-splicing. Exon-Intron circRNA are wealthy at transcription sites and may promote transcription of their parent mRNA [4,7]. Now, we introduce some bioinformatics tools that use for circRNA predication such as circBase, circ2trait, circNet , circInteractome, mapsplice, Circfinder and Etc[5,8].

CIRCRNA and DISEASE

Recent research has been shown that circRNAs may play critical role in initiation and progress of some disease such as atherosclerosis, Parkinson's disease, diabetes, prion and vascular disease also it is feasible that some circRNA may have tumorigenesis in cancer [6]. According to gene ontology enrichment analysis of bioinformatics data base to find the many different involved in different pathological processes of cervical cancer and gastric cancer, respectively see table 1.

Conclusion

We can use circRNA as new biomarker for detection cancer and other disease with several reason First, CircRNA a stable molecule and compare with linear RNA. Furthermore, CircRNA have a very long half time as compare to linear RNA. Circular RNAs are numerus in the blood and blood based biomarkers are increasing because the analysis is fast and cost-effective. The level of circRNA in blood and tissue are variable also this molecule are sensitivity and specificity of the target. Hopefully in the future, the role of circular RNA will be established and use in clinical trial.

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Table 1 CircRNAs associated with human disease

CircRNA	Alias	Regulation	Gene symbol	Sample	Disease/tumour	Genome position
hsa_circ_0001946	CDR1as	–	CDR1	Cell lines	Colorectal cancer,[22] [23] breast cancer[22] [24]	chrX:139865339-139866824
hsa_circ_0001946	CDR1as	↓	CDR1	Human samples	Alzheimer's disease;[25]	chrX:139865339-139866824
hsa_circ_0001141	hsa_circ_001763	↓	ITCH	Human samples	Colorectal cancer,[26] oesophageal carcinoma[27]	chr20:33001547-33037285
hsa_circ_0006229	–	↓	TNS3	Human samples	Colorectal cancer[28]	chr7:47384352-47385954
hsa_circ_0007374	–	↑	AZIN1	Human samples	Colorectal cancer[28]	chr8:103846416-103852051
hsa_circ_0002190	circ-KLDHC10	↑	KLDHC10	Human samples (cancer serum)	Colorectal cancer[29]	chr7:129760588-129762042
hsa_circ_0001649	hsa_circ_001599	↓	SHPRH	Human samples	Hepatocellular carcinoma[30]	chr6:146209155-146216113