Recent patents in RNA-based therapies

Patent number	Description	Assignee	Inventor	Date
US 9,469,854	A pharmaceutical composition comprising a microRNA (miRNA) mimic containing a single-strand RNA molecule of hsa-miR-21-3p, which can be used to treat liver diseases through regulating the expression of methionine adenosyltransferase 2A and 2B (MAT2A and MAT2B), acetyl-CoA carboxylase 1 and 2 (ACACA and ACACB), diglyceride acyltransferase 2 (DGAT2).	Academia Sinica (Taipei)	Chen S-T, Lo T-F, Tsai W-C	10/18/2016
US 9,469,851	RNA interference (RNAi)-based methods for inhibiting the expression of the *DUX4* gene, a double homeobox gene on human chromosome 4q35; useful in the treatment of muscular dystrophies such as facioscapulohumeral muscular dystrophy.	Nationwide Children's Hospital (Columbus, OH, USA)	Harper SQ, Liu J, Coppens SG, Wallace L	10/18/2016
US 9,464,293	Aptamers that include an RNA molecule that specifically binds a pancreatic cancer cell surface protein and that may be conjugated to one or more therapeutic agents (e.g., a short hairpin RNA (shRNA) molecule, a short interfering RNA (siRNA) molecule, an mRNA molecule, or an miRNA molecule), one or more diagnostic agents, or a combination thereof; may be used to deliver therapeutic agents to a pancreatic cancer cell, and/or in methods for treating or diagnosing pancreatic cancer.	City of Hope (Duarte, CA, USA)	Rossi JJ, Yoon S	10/11/2016
US 9,464,292	A sense oligonucleotide having a sequence complementary to a single-stranded RNA (antisense transcript) having a sequence complementary to mRNA of inducible nitric oxide synthase (iNOS) gene in order to control expression of iNOS; useful for biological defense and treatment and prevention of diseases related to excessive production of NO, such as carcinogenesis, inflammatory disease, endotoxin shock by bacterial infection, etc.	Amino Up Chemical (Hokkaido, Japan), Kansai Medical University (Osaka)	Okumura T, Nishizawa M, Kamiyama Y, Wakame K, Miura T	10/11/2016
US 9,464,290	Double-stranded nucleic acid molecules including small nucleic acid molecules, such as short interfering nucleic acid (siNA), siRNA, double-stranded RNA (dsRNA), miRNA and shRNA molecules that are capable of mediating or that mediate RNAi against hepatitis B virus gene expression.	Sirna Therapeutics (Cambridge, MA, USA)	Bartz S, Brown D, Robinson M	10/11/2016
US 9,464,289	Methods of identifying an Alu RNA inhibitor, and methods and compositions for inhibiting Alu RNA; can be used for the treatment of geographic atrophy and other conditions of interest.	University of Kentucky Research Foundation (Lexington, KY, USA)	Ambati J	10/11/2016
US 9,458,492	Methods for identifying compounds for the treatment of viral infection, including RNA viral infection and uses of the compounds as pharmaceutical compositions. The identified compounds modulate the RIG-I pathway in vertebrate cells.	Kineta (Seattle)	Iadonato SP, Bedard K	10/4/2016
US 9,458,472	A composition comprising a vector for transfecting a cell that comprises a first nucleic acid encoding an antisense agent having thereon an RNAi target for a transcript of a gene endogenous to the cell, and a second nucleic acid that encodes a cell-killing agent. The second nucleic acid further comprises a sequence of nucleotides transcribable into a non-coding region of a transcript of the second nucleic acid, such that the non-coding region becomes an RNAi target for the antisense agent. In the transfected cell, the vector operates to interfere with the expression of the cell-killing agent unless and until the vector senses certain endogenous gene signals, whereupon it releases the cell-killing agent. Also, a method of treating a disease in a patient by killing cells responsible for the disease, the method comprising administering the vector to the patient until the disease, or a symptom thereof, is ameliorated.	Massachusetts Institute of Technology (Cambridge, MA, USA)	Weiss R, Purnick PEM, DeHart C, Monk J, Swaminathan A	10/4/2016
US 9,458,458	Manipulating microRNA for the management of neurological disorders and compositions related thereto, comprising inhibition of miR324 or miR324-5p, e.g., the use of nucleobase polymers for antisense disruptions or RNAi of miR-324 expression or for miR324-5p binding in order to increase Kv4.2 expression.	Emory University (Atlanta)	Bassell GJ, Yao X, Gross C	10/4/2016

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