

Pig Flu

Pig flu (also called swine flu, swine influenza and hog flu) is a respiratory disease of pigs caused by type A influenza virus that regularly causes outbreaks of influenza in pigs. Swine flu viruses cause high levels of illness and low death rates in pigs. Swine influenza viruses may circulate among swine throughout the year, but most outbreaks occur during the late fall and winter months similar to outbreaks in humans. The classical swine flu virus (an influenza type A H1N1 virus) was first isolated from a pig in 1930. Swine flu viruses change constantly. When influenza viruses from different species infect pigs, the viruses can reassort (i.e. swap genes) and new viruses that are a mix of swine, human and/or avian influenza viruses can emerge. There are four main influenza type A virus subtypes have been isolated in pigs: H1N1, H1N2, H3N2, and H3N1. most of the recently isolated viruses from pigs is H1N1 viruses.



Can humans catch swine flu?

Swine flu viruses do not normally infect humans. However, sporadic human infections with swine flu have occurred these cases occur in persons with direct exposure to pigs (e.g. children near pigs at a fair or workers in the swine industry). In addition, there have been documented cases of one person spreading swine flu to others. For example, an outbreak of apparent swine flu infection in pigs in Wisconsin in 1988 resulted in multiple human infections, and, although no community outbreak resulted, there was antibody evidence of virus transmission from the patient to health care workers who had close contact with the patient .

Symptoms of swine flu

The symptoms of swine flu in people are similar to the symptoms of regular human seasonal influenza including fever, lethargy, lack of appetite and coughing. Some people with swine flu have reported runny nose, sore throat, nausea, vomiting and diarrhea.

Special points of interest:

- Swine flu viruses do not normally infect humans.
- there is no vaccine currently available made with this particular virus.

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How does swine flu spread?

It can be directly transmitted from pigs to people and from people to pigs. Human infection with flu viruses from pigs occur when people are in close proximity to infected pigs, such as in pig barns and livestock exhibits housing pigs at fairs. Human-to-human transmission of swine flu can also occur. This occurs in the same way as seasonal flu occurs in people, which is person-to-person transmission through coughing or sneezing of people infected with the influenza virus. People may become infected by touching something with flu viruses on it and then touching their mouth or nose.

How can swine influenza be diagnosed?

A respiratory specimen would generally need to be collected within the first 4 to 5 days of illness (when an infected person is most likely to be shedding virus). However, some persons, especially children, may shed virus for 10 days or longer.

What medications are available to treat swine flu infections in humans ?

There are four antiviral drugs licensed for use in the US for treatment of influenza: amantadine, rimantadine, oseltamivir and zanamivir. While most swine influenza viruses have been susceptible to all four drugs, the most recent swine influenza viruses isolated from humans are resistant to amantadine and rimantadine.

Is an effective vaccine already available against the new influenza A (H1N1) virus?

Since this H1N1 virus is new, there is no vaccine currently available made with this particular virus. Making a completely new influenza vaccine can take five to six months.

At this time, Centers for Disease Control and Prevention recommends the use of oseltamivir or zanamivir for the treatment and/or prevention of infection with swine influenza viruses.

Preventing the Flu

- Avoid close contact
 - Stay home when you are sick.
 - Cover your mouth and nose.
 - Wash your hands often.
 - Avoid touching your eyes, nose or mouth.
 - Practice other good health habits.
- [1]

Influenza A (H1N1) - update [2]

8 May 2009 -- As of 16:00 GMT, 8 May 2009, 25 countries have officially reported 2500 cases of influenza A (H1N1) infection.

Mexico has reported 1204 laboratory confirmed human cases of infection, including 44 deaths. The United States has reported 896 laboratory confirmed human cases, including two deaths. The following countries have reported laboratory confirmed cases with no deaths - Austria (1), Brazil (4), Canada (214), China, Hong Kong Special Administrative Region (1), Colombia (1), Costa Rica (1), Denmark (1), El Salvador (2), France (12), Germany (11), Guatemala (1), Ireland (1), Israel (7), Italy (6), Netherlands (3), New Zealand (5), Poland (1), Portugal (1), Republic of Korea (3), Spain (88), Sweden (1), Switzerland (1) and the United Kingdom (34).

References:

- 1-Centers for Disease Control and Prevention. [CDC].
- 2-www.who.gov.

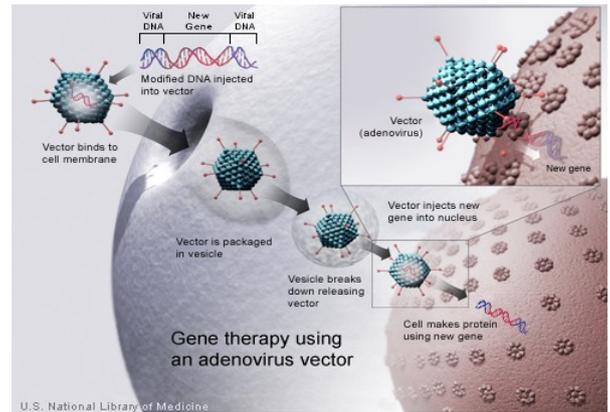
GENE THERAPY

Genes are specific sequences of bases that encode instructions on how to make proteins. Although genes get a lot of attention, it's the proteins that perform most life functions and even make up the majority of cellular structures. When genes are altered so that the encoded proteins are unable to carry out their normal functions, genetic disorders can result.

Gene therapy is a technique for correcting defective genes responsible for disease development. . Researchers may use one of several approaches for correcting faulty genes:

- A normal gene may be inserted into a nonspecific location within the genome to replace a nonfunctional gene. This is most common.
- An abnormal gene could be swapped for a normal gene through homologous recombination.
- The abnormal gene could be repaired through selective reverse mutation, which returns the gene to its normal function.
- The regulation (the degree to which a gene is turned on or off) of a particular gene could be altered.

In most gene therapy studies, a "normal" gene is inserted into the genome to replace an "abnormal," disease-causing gene. A carrier molecule called a vector must be used to deliver the therapeutic gene to the patient's target cells. Currently, the most common vector is a virus that has been genetically altered to carry normal human DNA. Target cells such as the patient's liver or lung cells are infected with the viral vector. The vector then unloads its genetic material containing the therapeutic human gene into the target cell. The generation of a functional protein product from the therapeutic gene restores the target cell to a normal state .



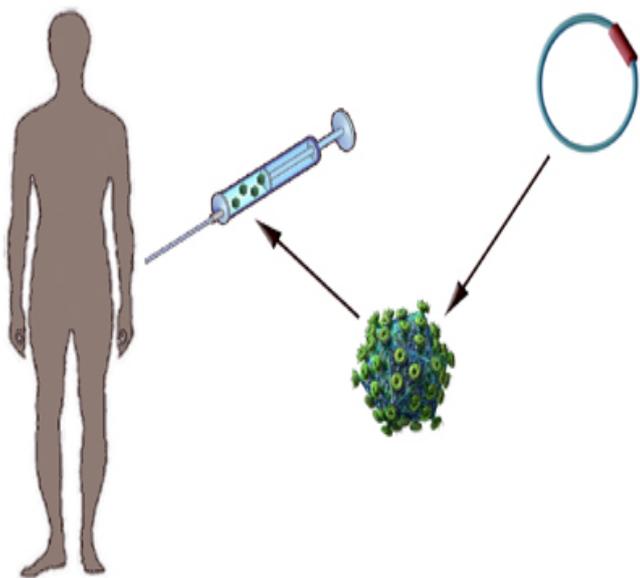
Some of the different types of viruses used as gene therapy vectors:

- **Retroviruses:** viruses that can create double-stranded DNA copies of their RNA genomes. These copies of its genome can be integrated into the chromosomes of host cells. (HIV) is a retrovirus.
- **Adenoviruses:** viruses with double-stranded DNA genomes that cause respiratory, intestinal, and eye infections in humans. The common cold is an adenovirus.
- **Adeno-associated viruses:** small, single-stranded DNA viruses that can insert their genetic material at a specific site on chromosome 19.
- **Herpes simplex viruses:** double-stranded DNA viruses infect a particular cell type, neurons .Herpes simplex virus type 1 is a common human pathogen causes cold sores [1].

Retroviruses are the most common viral vector currently used for therapy in all diseases, including cancer. Adenoviruses are the second most commonly used vectors. Although useful, they cause immunological and inflammatory reactions that may render repeated administrations impossible.

Gene Therapy in Breast Cancer

Breast cancer is the major cancer in females in industrialized countries. breast cancer therapy consists of surgery, chemotherapy, radiotherapy and hormone therapy. All have side effects and limitations. they do not guarantee a complete eradication of tumor cells from the body and a prolonged lifespan. new therapeutic approach for cancer is gene therapy has been shown to be effective not only with cancer, but also with many other types of diseases .Cancer gene therapy is at a point where the need for an optimal gene delivery vector has become the rate limiting step to metastatic and/or non-metastatic cancer cells. [2,3].



References:

- (1) Genomics.energy.gov.
- (2) National cancer institute.
- (3) Ogan D. ABAAN1, Wayne E. CRISs. Gene Therapy in Human Breast Cancer. Turk J Med Sci 32 (2002) 283-291 © T.BÜTAK Received: April 01, 2002.

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