

Short Communication

AIDGEN: A database of AIDS information system

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AIDS is a highly vulnerable life threatening disease that attacks and destroys the body's immune system, leaving the patient abnormally vulnerable to infections and many other diseases caused by human immunodeficiency virus (HIV) in humans. The overall aim of this AIDGEN database is to create awareness among people about AIDS, to dispel myths about AIDS and AIDS causing genes. This database will provide information that will support and strengthen those people affected by HIV/AIDS and those who work to provide for their needs.

Key words: Disease, AIDS, HIV, genes, infection, side effect.

INTRODUCTION

Discernable genetic variation among people and populations has an important role in infectious disease epidemics, including that of acquired immune deficiency syndrome (AIDS). Twenty-five years after its discovery, HIV still has a major health and socioeconomic impact, particularly in developing countries (Ghosh, 1986). Approximately 33 million people worldwide are infected with HIV, with an estimated 2.5 million new infections and 2.1 million AIDS-related deaths occurring each year, with over one billion inhabitants (Feng et al., 1996). Of this number, it's estimated that around 2.4 million Indians are currently living with HIV. In the recent years there is evidence of epidemic being stabilized with decrease in new infections reported from some parts of the country (Rong Liu, 1996).

The absolute number of HIV infections in the country is expected to be close to 2.5 million and National AIDS Control Programme phase III is geared to contain the epidemic (Cheryl Winkler, 2004). HIV viruses circulating in India predominantly belong to HIV-1 subtype C. However, there have been occasional reports of HIV subtype A and B. Matter of concern is reports of A/C and B/C mosaic viruses that are being reported from different parts of the country (Michael Dean, 1996). The data on HIV drug resistance from India is rather limited (Stephen and George, 2004). Hence we developed AIDGEN (Database of AIDS causing genes), an on-line web based

database that contains more than 100 AIDS related disease concepts and provides with a covering of all related genes, proteins, general and drug information. The database is accessible at <http://www.ourspot.info/aids>. This database represents a unique and continuously updated scientific resource for understanding HIV replication and pathogenesis to assist in accelerating the development of effective therapeutic and vaccine interventions.

METHODOLOGY

Data collection

Data of AIDS and AIDS causing genes were collected from various literature sources such as Pubmed [<http://www.ncbi.nlm.nih.gov/pubmed>], Science Direct [www.sciencedirect.com], Blackwell Synergy [www.blackwell-synergy.com], Scirus [www.scirus.com], Ingenta Connect [www.ingentaconnect.com], Springer link [www.springerlink.com], Biomed Central [www.biomedcentral.com], Google [www.google.com]. The current database contains general information about AIDS and 100 AIDS Causing gene information contains details in Gene Name, Gene ID, Organism, Lineage, Chromosome no, Protein Name, Abstract, Reference for each gene. The data was provided in the order of chromosome no and the records are organized to simplify the task of finding information of any gene that causes AIDS in *Homo sapiens*.

Database content

The entry of genes listed in the database contain information such as Gene Name, Gene ID, Organism, Lineage, Chromosome no, Protein Name, Abstract, Reference for each gene (Figure 1).

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AIDS AWARENESS	
<p>Home General Information List of Genes Contact</p>	
Gene details	
Gene name	cspE cold shock protein CspE
GeneID	1058348
Organism	Buchnera aphidicola str. Bp (Baizongia pistaciae)
Lineage	<i>Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; Buchnera</i>
Protein name	Cold shock-like protein cspE

Figure 1. Screen shot represents AIDGEN database, Gene Details information of cspE.

Database design

The AIDGEN database was developed using Microsoft Access as back end, front page Standard HTML Home page is developed in Macromedia flash layer on window platform and update regularly.

Utility

AIDS play the major role that affects our entire environment. This database is formulated in such a way that quick reference to a particular gene that causes AIDS is available. Also this serves as a platform for the development of drugs. This database will give high values for researchers and the students working in this area.

Conclusion

AIDS database explores some plausible reasons for the high concentration of HIV, which causes the acquired immunodeficiency syndrome (AIDS) and discusses possible ways to reduce infection rates. It include gene name, gene ID, organism, lineage, chromosome no, protein name, abstract, reference.

Alternatively, users can also view general information like symptoms, prevention, diagnosis, treatment, transmission, life after HIV and structure of HIV. It has several hyperlinks to view its complete information. This AIDS database was obtained from various curretted databases. We believe that this database helps to create awareness among people and dispels myths about AIDS, alongside with AIDS causing genes and those who work to provide for their needs.

This database aims at providing general information and gene based information about AIDS; the details were collected from various websites and journals using articles as the main source. This acts as a source for discovering new drugs.

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REFERENCES

- Cheryl W, Ping A, Stephen JO (2004). Patterns of ethnic diversity among the genes that influence AIDS. *Hum. Mol. Genet.* 13: 9-19
- Feng Y, Broder P, Kennedy E, Berger A (1996). Hiv-1 entry cofactor: functional cDNA cloning of seven-transmembrane, g protein-coupled receptor. *Science* 272: 872-877.
- Ghosh TK (1986). AIDS: a serious challenge to public health'. *Journal of the Indian Med. Assoc.* 84: 29-30.
- Michael D (1996). Genetic restriction of hiv-1 infection and progression to aids by a deletion allele of the ckr5 structural gene. *Science* 273: 1856-1862.
- Rong L (1996). Homozygous defect in hiv-1 co receptor accounts for resistance of some multiply-exposed individuals to hiv-1 infection. *Cell* 86: 367-377.
- Stephen JO, George WN (2004) Human genes that limit AIDS. *Nat. Genet.* 36: 565 – 574.