Recent advances in cognitive gene diabetic database

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ABSTRACT

Introduction: Diabetes mellitus is a lifestyle disorder with genetic predisposition, which is clinically manageable in a few cases. We have created a database for those people who work exclusively on diabetes. This database is going to enhance the way they work by simplifying the whole process of accessing several databases at several instances. As a boon to the researchers, this database is going to be a freeware. Materials and Methods: The operating system is Microsoft Windows, the front end and the back end being hypertext preprocessor and MySQL, respectively. I have used WAMP as my web server. Results and Discussion: As a fundamental requirement, all the genes that are involved in causing this atopy are included in the database and can be retrieved at any moment if needed. Moreover, the corresponding conserved domain sequence, protein parameters, as well as the protein motif, its positions, and descriptions can be retrieved. Conclusion: The information that are found in future that contributes to this disorder will also be added to the database as and when they are discovered. Apart from this, some of the salient and significant information pertaining to diabetes can also be found.

KEY WORDS: Cognitive gene diabetic database, Diabetes, Gene database, MySQL, Snapshots

INTRODUCTION

As for our database cognitive gene diabetic database (CGDD) is concerned, it is necessary to know about the genes, conserved domains, motifs, and protein parameters, which are discussed as follows. It is possible to obtain the information of all the genes responsible for diabetes disease in Homo sapiens. Using this, it is easy to retrieve the conserved domains, motifs, and protein parameters. This database will enhance the way they work by simplifying the whole process of accessing several databases at several instances. As a boon to the researchers, this database is going to be a freeware. These data are stored in MS SQL SERVER database. We have created a web interface to access these data easily.[1-3]

As mentioned in above cause, in the source record of Hypertext Markup Language (HTML), PHD code was inserted and explained by a hypertext preprocessor (PHP) processor web server, which produces the website page report. As a universally useful programming language, PHP code is prepared by a translator application in direction line mode performing wanted working framework tasks and delivering program yield on its standard yield channel. This type of system will work as a pictorial presentation in the form of graphs. PHP is accessible as a processor for most present-day web servers and as an independent mediator on most working frameworks and registering stages.[4-7]

Among lifestyle disorders, diabetes is a disorder of the metabolism, in which insulin plays a major role, any imbalance in insulin production in our body can lead to metabolic disorder. Among several metabolic disorders, diabetes is tightly regulated by insulin, a growth factor that is required to change over sugar, starches, and other nourishment into vitality. Diabetes mellitus is described by steady abnormal amounts of blood glucose (sugar). Human body needs to keep up the sugar level in blood at an extremely limited range, which is finished with hormones responsible in carbohydrate metabolism such as glucagon and insulin. The capacity of glucagon is making the liver discharge monosaccharide sugar molecules into the blood from metabolically active cells for the generation of vitality.[7,8] However, diabetes mellitus is not totally treatable be that as it may, it is controllable all things considered. In this way, you need careful diabetes data to deal with this it effectively. The

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control of diabetes for the most part relies on the patient and it is his/her duty to deal with their eating regimen, exercise, and prescription. Advances in diabetes inquire about have prompted better methods for regulating this metabolic disorder and treating its complexities. Subsequently, they incorporate as follows:

- Recently developed insulin and its treatment (outside and implantable insulin siphons) have propelled well to oversee raised blood sugars with no unfavorably susceptible responses.
- Oral hypoglycemic medication, controls diabetes Type 2.
- Recently developed blood sugar screen (new gadget for self-blood glucose observing) and hemoglobin A1c research facility test to gauge blood glucose control amid past 3 months.
- Effective accessibility of the medicines for influenced body organs due to diabetes.

Diabetes mellitus, regularly known as diabetes, comes in various structures and influences all age gatherings. In the United States, 18.2 million individuals, or 6.3% of the populace, have been determined to have diabetes. In lifestyle disorders, diabetes is the leading driving reason for death in the United States and is the main source of visual deficiency, constant renal disappointment, and non-awful lower limit removals. In 2002, roughly, $132 billion was spent on immediate and backhanded expenses of diabetes in the United States. These figures show the requirement for better arrangements in diabetes treatment and avoidance. Development of CGDD provides information about the genes responsible for diabetes, conserved domains, protein motifs, and protein parameters. This database is going to enhance the way they work by simplifying the whole process of accessing several databases at several instances. As a boon to the researchers, this database is going to be a freeware.

**MATERIALS AND METHODS**

**MySQL**

MySQL is a social database the executive framework (RDBMS) which maintains as a server resulting in several client accesses to several databases. In literature search, it is clearly mentioned that the MySQL advancement venture had developed its basic programming code which will enable to attain under the control of the GNU General Public License, just as subdued within diversity of limited understandings. MySQL is prepared and helps by an isolated and separate revenue driven firm, the Swedish organization MySQL AB, presently claimed through microsystems, a backup of Oracle Corporation. Liberally available software programming enters that require a highly enlightened source database the executive framework regularly use MySQL. Such ventures incorporate (as an example) phpBB, WordPress. MySQL is likewise utilized in some prominent, substantial digital internet sources in all over the places which are most commonly used in popular web-based search tools.

Based on C and C++ program, MySQL was developed for the above purpose. The home fermented spl_lex was used through SQL parser manner. The most commonly used in PHP was utilized for the sake of development of web to deliver appropriate immediate handing over of web pages.

For this reason, PHP code is inserted into the HTML source record and deciphered by a web server with a PHP processor module, which creates the site page archive. As a universally useful programming language, PHP code is handled by a mediator application in order line mode performing wanted working framework tasks and creating program yield on its standard yield channel. It might similarly report as a pictorial utility and application. PHP is attainable and available as a processor for most present-day web servers and as independent translator on most working frameworks and figuring stages.

WAMPS are bundles of liberally available projects introduced on PCs that use a framework of MS Windows. WAMP is an abbreviation framed from the initials currently used framework MSt Windows and the needy fragments of the bundle: PHP is a scripting language that has capacity to regulate data possessed in a database and create site pages powerfully each time content is asked for by a program. Different projects may likewise be incorporated into a bundle, as an example, phpMyAdmin which produces a pictorial or graphical UI to database of the MySQL director, or the option scripting dialects Python or Perl.

**Front End Coding: HTML**

**Collection of information**

The following gene information from NCBI is obtained as shown above. >ref|NC_000008.10|:118147337-118188953 Homo sapiens chromosome 8, GRCh37 primary referenceassembly AGCAGTTTTTGTAGGTTG AAAAAAACATTGAGCCAGCAGTAAATATTGCA A G G A G G C T G T A A T T T A G C A GACCTAACCAACAACACTGATGTAGG AAGCTCATATTTTATTTTCTGAAGCTTTTT ATTGTTTCTTTAGAAGTGTATAT A T A T T G C A G T G C T G C T T T G C T T T C C A A A A A C T G G C A G T G A G TTCAACAACAAACAGCACACACACACACAGCCG CAGCTCATCTCTGCCGTCATAGGTT T C T T G A A A G A A A C G T A T C T TGTGAATGATAAAGCTGCCAAGAT.
We have obtained the conserved domain sequences from UniProt using the id from NCBI and motifs from Motif search as shown below.

The above information is stored in the database using MySQL as shown below. CREATE TABLE `diabetes_table` ( 'SLNO' int(5) NOT NULL auto_increment, 'GeneID' int(10) NOT NULL, 'GeneName' varchar(600) NOT NULL, 'GeneSeq' longblob NOT NULL, 'Domain' longblob NOT NULL, 'MotifLocDesc' longblob NOT NULL, 'Proteinparam' longblob NOT NULL, PRIMARY KEY (`SLNO`))

INSERT INTO `diabetes_table` VALUES (1, 169026, "solute carrier family 30 (zinc transporter), member 8 [Homo sapiens]," "gene sequence," "domain sequence," "motif locations and descriptions," "protein parameters");

Designing web interface is shown below along with the snapshots

index.html (main page):

disease.html

CGDD is a free database devoted to genes, conserved domains, and protein motifs responsible for diabetes in human beings. To permit programmed distinguishing proof and acknowledgment of spaces, themes and protein parameters are categorized and the parameters are checked as well. Protein themes and spaces are imperative as they give hints as to conceivable elements of the protein and conceivable interactions of the protein. In the event that the protein for instance has a space for DNA, it can be foreseen that that protein may act by authoritative to DNA arrangements.

RESULTS AND DISCUSSION

This page contains the following results:

GeneID: 169026
Gene name: Solute carrier family 30 (zinc transporter), member 8 (Homo sapiens)
Conserved Domain: MEFLERTYLVNDKAAKM YAFTLESVELQQKPVPNKDQCP RERPEELESGMYHCHSGSKPTEK GANEYAYAKWKLCASA S AICFIIFMIAEVEVGHIAG SLAVTVDAHLIDLTSFLLLSLFS LWLSSKPPSKRRLTFGWHLA
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CONCLUSION

Four important points are highlighted below:
1. CGDD is a free database availed for the user requirement.
2. Open the database through the browser.
3. Choose the required gene id or gene name and click enter.
4. We will get all the information such as gene sequence, conserved domain sequence, protein parameters, motifs its locations, and descriptions for a particular gene.

REFERENCES


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