

POSTER PRESENTATION

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BioSearch: an in-house developed lab information management system for center of excellence in genomic medicine research

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Background

Databases and biobanks are developed in relation to a research question having its own strategy and specific

demands on quality and annotation of the collected samples, resulting in multiple designs according to the different possible goals [1]. Translational research is

The screenshot shows the BioSearch System interface. At the top, there is a navigation bar with links for Home, Add Sample, Edit Original Sample, Log Book, Samples Status, Box Contents, Requests, Add New, Search, and Options. Below the navigation bar, a banner displays the text "Biosearch System". On the left, there is a logo for the "Center of Excellence in Genomic Medicine Research". The main area is titled "Add New Sample". It contains two main sections: "Patient Personal Details" and "Sample Information". The "Patient Personal Details" section includes fields for Patient No., Relative MRN, Hospital, Physician Name, Patient Name, Sex, Date of Birth, Age, Nationality, Diagnosis / Indication, Contact, Receiving Date, Comments, Entry Date, Number of Received Samples, and Inserted by. The "Sample Information" section includes fields for Sample Type, Year No., Serial No., Vial No., Storage Type, Storage No., Shelf No., Box No., Coordinate, Quantity (Unit), and DGRL No. There is also a checkbox section for Extraction types: Cell, DNA, DNA of Plasma, DNA of Serum, Micro RNA, Micro RNA of Pax gene (RNA Tube), Micro RNA of Plasma, Micro RNA of Serum, Pax gene (DNA Tube), Plasma, Protein, RNA, RNA of Pax gene (RNA Tube), and RNA of Plasma. At the bottom of the form, there is a message stating "There is no selected sample" and buttons for Save, Reset, and Cancel.

Figure 1 Biosearch System; an interactive database allowing valid researchers to access specimen details and request required specimen derivatives

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highly dependent on large series of cases including high quality samples and their associated data.

Materials and methods

We used ASP.NET as front-end tool, SQL Server Management Studio as back-end tool, and JavaScript and Ajax control toolkit for client-side purpose.

Results

We successfully developed an in-house Clinical Database and Biobank Management System called BioSearch, a disease-oriented general Biobank, with the goals correspond to disease biomarkers and drug target discovery through prospective and/or retrospective collections of samples and their derivates (DNA/RNA/proteins), usually associated with clinical data (Figure 1). BioSearch manages samples and clinical data of more than 5,000 patients collected between 2005 and 2013. It is composed of two well-connected units: Clinical database, a web-based database for clinical data associated with collected samples and Biobank Management System, a locally hosted database to manage the samples and their derivatives. Presently BioSearch is acting as a backbone for high-throughput genomic studies of CEGMR involved in translational research and personalized medicine.

Conclusions

In conclusion, "BioSearch" is a platform independent highly flexible web-based user friendly system allowing clinician, researchers and biobank staff to submit, store and retrieve samples and their associated clinical information. In future, we plan to extend its capabilities by implementing new plug-in devoted to experimental research data and bioinformatics for data analysis.

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