



YASHRAJ
BIOTECHNOLOGY LTD.
a bio-quest for ever



The **YBL** Newsletter

Volume 4, Issue 3, October 2017



- - - - I N S I D E T H E I S S U E - - - -

➤ **Message from the promoter Directors**

➤ **Our Recombinant & Native antigens**

➤ **MEDICA 2017**

Dear Readers,

Welcome to this issue of Yashraj Biotechnology's Newsletter. It is indeed a moment of great pleasure to release the third issue of our newsletter in 2017. In the third quarter of the 2017, we successfully performed scale up studies of Native RBP. Now, RBP is one of the new products in our portfolio.

We are glad to inform, YBL has entered into the stem cell research arena. Through this program we plan to contribute to new drug discovery R&D, clinical development programs, personalized medicine for patients and cell and tissue banking. An overview of our R & D plan is described on page 5 & 6.

In the second week of November, we will be at MEDICA in Germany. We cordially invite you to visit our MEDICA booth # 3H35 and look forward to seeing you there.

Thank you all for your support.

Arvind K. Bhanushali, Bharat T. Dagha, Paresh B. Bhanushali

Promoter Directors

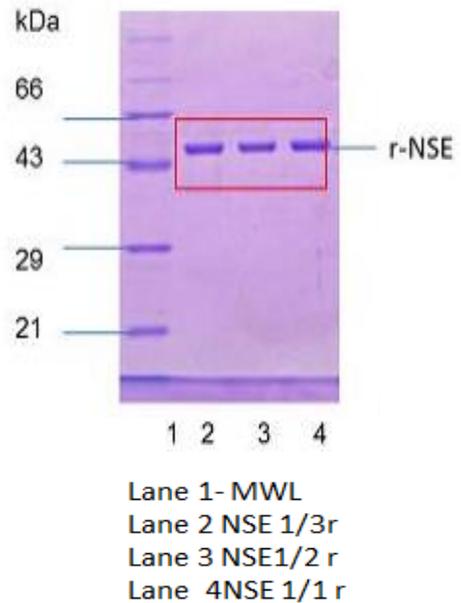
-----NSE-----

NSE

Neuron specific enolase is an enzyme of glycolytic pathway. This enzyme is released in the cerebrospinal fluid (CSF) during neuronal injury. It is also a very useful biomarker for detection of neuroblastoma in tumor patients.

Route of Production: Recombinant

12 % SDS PAGE Profile of r-NSE



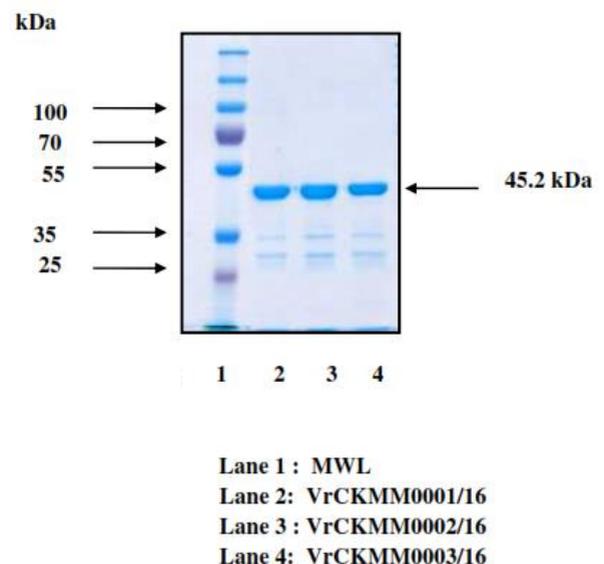
-----CKMM-----

CKMM

Creatine Kinase MM is a an enzyme predominantly present in the muscles. CKMM is believed to be a reliable marker of skeletal muscles injuries.

Route of Production: Recombinant

10% Reduced SDS-PAGE: CKMM



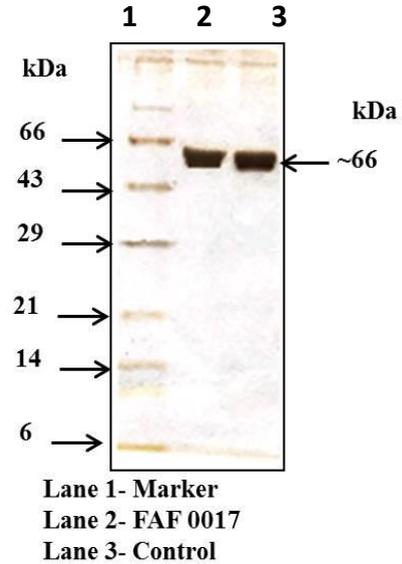
----- AFP -----

AFP

Alpha fetoprotein (AFP) is a protein usually produced by the liver and yolk sac of a developing fetus during pregnancy. AFP is a gold standard diagnostic biomarker for Hepatocellular carcinoma (HCC). Elevated level of AFP level correlates with the presence of HCC.

Route of Production: Native

12% Unreduced SDS-PAGE: AFP



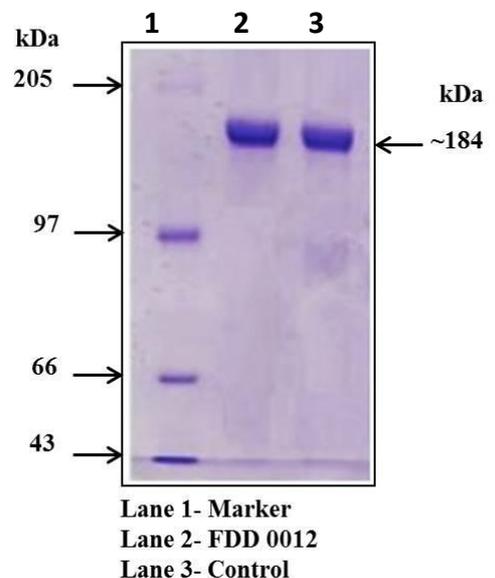
----- D-Dimer -----

D- DIMER

D-dimer is a degradation product of fibrin. It is considered as a prognostic marker for thrombotic disorders. D-dimer testing is also used for the evaluation of suspected patients of deep venous thrombosis. On native page observed molecular weight of D-dimer is 184 kDa.

Route of Production: Native

7% unreduced SDS PAGE: D-Dimer



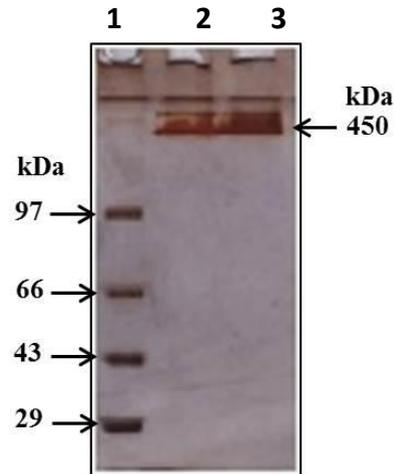
----- FERRITIN -----

PLACENTAL FERRITIN

Human placental ferritin (PLF) is a heteropolymer comprising of 43-kDa subunits of ferritin light chains. Placental ferritin acts as a physiological immunoregulator during pregnancy. Elevated level of Human placental ferritin (PLF) are seen in the serum of pregnant women. Molecular weight of native form is observed around 450 kDa.

Route of Production: Native

7% Unreduced SDS-PAGE: Ferritin



Lane 1- Marker
Lane 2- FPF 0006/15
Lane 3- Control

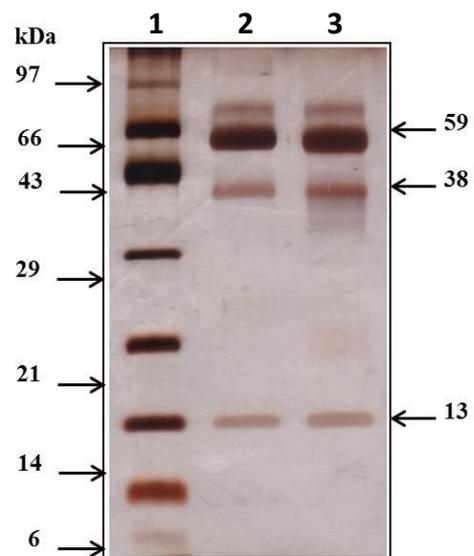
-----MPO-----

MPO

Myeloperoxidase is a heme-conjugated peroxidase enzyme. In humans, it is secreted by neutrophils during myeloid differentiation. MPO is considered as a prognostic marker for chronic vascular inflammatory disease.

Route of Production: Native

15% Reduced SDS-PAGE: MPO



Lane 1- Marker
Lane 2- VMPO 0002/14
Lane 3- Control

Yashraj Biotechnology Ltd. (YBL) since inception in 1999 has created a brand name for itself in the clinical diagnostics space and considered a leading name in the industry for bulk scale production of biomarker antigens. Standing true on its unwavering commitment for healthcare innovation, and with the objective of diversifying its product and service portfolio, YBL has committed itself to penetrating the niche area of drug development R&D to create disease specific model systems for preclinical testing of drugs and pharmacological compounds for high-throughput screening of candidate drugs in the developmental pipeline of pharmaceutical clients across industry verticals.

Since cancer and cardiovascular disease have the highest mortality rates across the world, YBL has chosen to develop unique, patient centric disease models for the two niche areas (with initial focus on Breast and Prostate Cancer) based on the ground breaking “Induced Pluripotent Stem Cell” (iPSC) Technology that bagged the 2012 Nobel Prize in Medicine for its discoverer Dr. Shinya Yamanaka (Kyoto University, Japan and UCSF, USA). These findings, that adult somatic cells can be reprogrammed to regain a state of pluripotency whereby, in the presence of right developmental cues, they can be pushed through lineage-specific differentiation to become any cell-type of the body has opened new vistas in the field of stem cells and regenerative medicine, and given an inexhaustible resource for in vitro modeling of human diseases such as cancer.”

YBL Stem Cell services:

1. Development of **disease specific models**, using stem cells for both in vitro and in vivo drug testing – Breast Cancer, Prostate Cancer, Cardiovascular Disease
2. High-throughput **candidate drug/therapeutic compound screening** (Safety assays)
3. **Biomarker discovery** program –to identify new clinical biomarkers for early diagnosis of the disease
4. **Adult stem cell banking** – by offering technology and service for the development of iPS cells from adults for long-term banking
5. **Bulk scale contract “cGMP” manufacturing of stem cells** –for cellular therapy
6. Contract manufacturing of **cell derived growth factors** – such as HGF, VEGF etc. and primary cancer cell derived biomarkers – such as Her2 neu, CA15-3, AFP-L3

Pluripotent Stem Cells in Disease Modeling and Drug Discovery

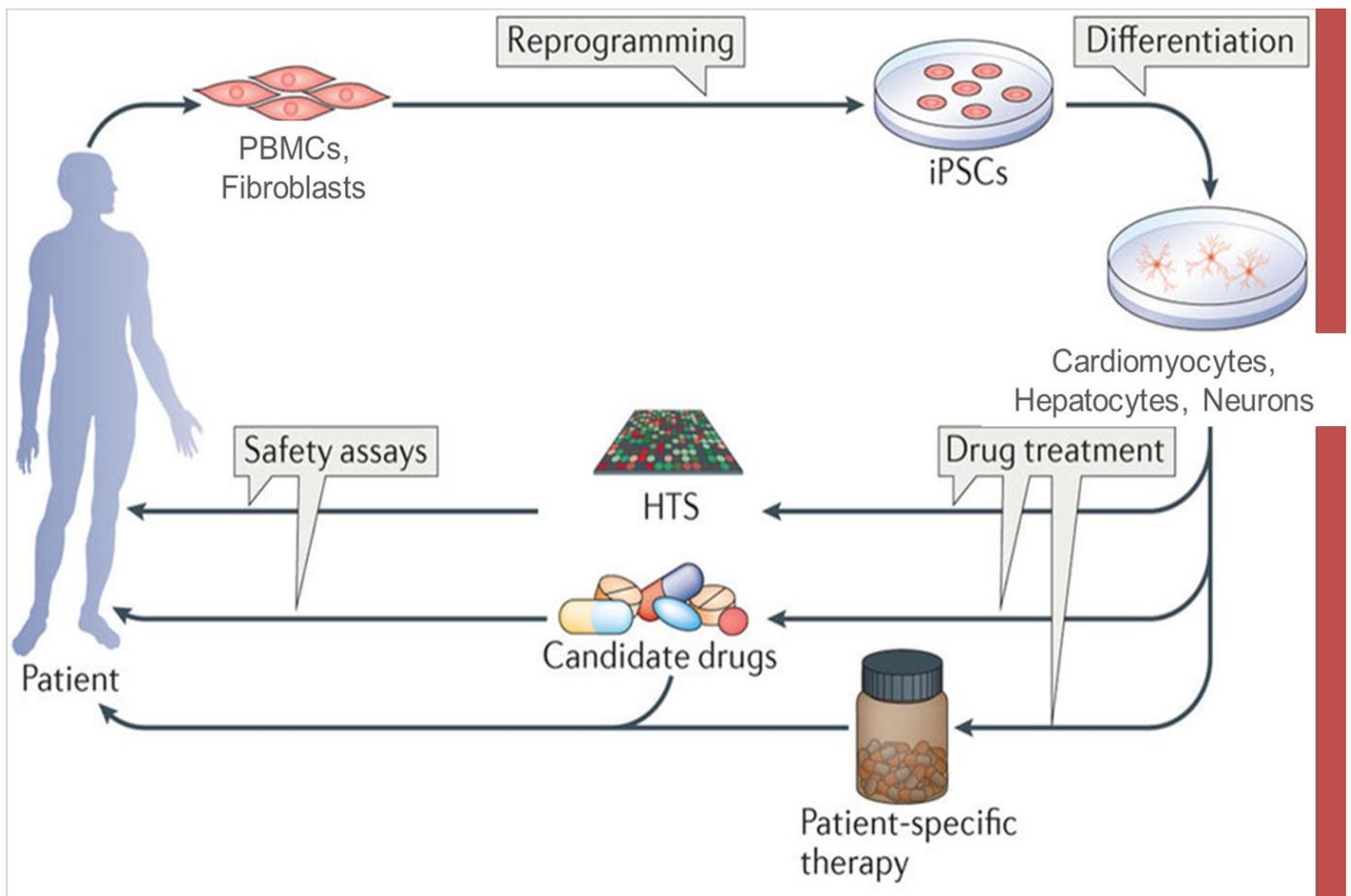


Figure: Drug development strategies using human induced pluripotent stem cells (iPSCs). Adapted from [Avior Y et al. Nature Rev Mol. Cell Biol. 17,170–182 \(2016\)](#).

Patient-derived somatic cells (for example, fibroblasts or PBMCs i.e. Peripheral Blood Mononuclear Cells) can be reprogrammed to generate iPSCs carrying disease-specific genetic aberration(s). These cells can then be differentiated into the disease-affected cell type (for example, cardiomyocytes in cardiovascular diseases, neurons in neurodegenerative diseases). After the establishment of a cellular disorder model with disease-specific phenotypes, three main strategies are commonly used: high-throughput screening (HTS) of drugs, the candidate drug approach or patient-specific therapy. In HTS, a very large number of compounds are tested on the differentiated cells, followed by phenotype re-evaluation. This method is extremely valuable for identifying novel therapies *in vitro*, by using large libraries of compounds. By contrast, both the candidate drug approach and the patient-specific therapy use a small number of potential drugs to attenuate the disease. These approaches are useful when the disease mechanism is known and potential therapies are available.

----Our New R&D endeavors---

YBL- R &D team is planning to take on following new biomarkers projects

Biomarker	Potential Indications
1. HLA-DR	Multiple Sclerosis, Allograft rejection, autoimmune disorders, Asthma, Type 1 Diabetes
2. CD44	Acute monoblastic Leukemia, Hodgkin's syndrome
3. Cathepsin D	Cerebellar Ataxia, Apnea
4. u-PA (Urokinase)	Quebec platelet disorder, Alzheimer's disease
5. t-PA or PLAT	Thrombophilia, Acute myocardial infarction, fibrin clotting disease
6. PARP1	DNA damage
7. Thymidine Kinase	Leukemia, Colorectal Cancer
8. ApoE	Glomerulopathy (kidney disease), Alzheimer's disease
9. APP (amyloid beta)	Alzheimer's and Cerebral Angiopathy

----Meet us in MEDICA 2017----

YBL will be at world's largest event for the medical sector, MEDICA 2017, Dusseldorf, Germany. Please visit us in MEDICA, 2017 at Booth #3H35. Our R&D team would be happy to answer your queries and discuss potential projects.

For appointments please write Email to- **Mr. B. T. Dagma**
(Director- Global Business Operation)

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Send us an e-mail inquiry, comment or suggestions at bharat@yashrajbio.com

For product information please visit us at <http://www.yashraj.com/>