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HBV Forum 2
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Working Group Update: Diagnostics & Biomarkers

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Diagnostic & Biomarkers WG

Ed Marins

Introduction

Working Group Charge:

- Map out the markers that might be needed for drug development and approval
- Review and discuss potential regulatory paths for these

Activities

- Identify what is the current regulatory approval status of the different HBV markers:
 - Spreadsheet created and reviewed by the WG
- Review and discuss potential regulatory paths for these markers:
 - Prioritize the markers that are not CE and/or FDA approved to discuss what would be the regulatory pathway to get them registered and what different approaches could be used to try to expedite their availability

Outcomes and Products

- List of regulatory Status for HBV markers:
 - <https://docs.google.com/spreadsheets/d/17YRNq1d12fFW1qmcDq5gmifUuQiAcd4p8D7aYvMvco0/edit#gid=1540366547>

Regulatory Status of HBV Markers

HBV Forum Diagnostics Working Group - Landscape_MM.xlsx

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Company

	A	B	C	D	E	F
1	Company	Assay (Yellow generally indicates research item, Blue	Marker	CE approved?	US approved?	Other Regulatory
28	DiaSorin	LIAISON HBeAg	HBeAg quant	Yes	No	
42	Biomerieux	VIDAS HBsAg Ultra	HBsAg quant	No	No	VIDAS platform ap
44	DiaSorin	LIAISON XL Murex HBsAg Quant	HBsAg quant	Yes	No	
50	Fujirebio	Lumipulse G HBsAg- Quant	HBsAg quant	Yes	No	
53	Quest	Quest HBsAg Quant	HBsAg quant	No	No	LDT
62	Quest	Quest Singapore HBsAg Quant	HBsAg quant	No	No	LDT
70	Roche	Elecsys HBsAg II quantitative	HBsAg quant	Yes	No	
72	Fujirebio	Lumipulse G HBcrAg	HBV core related antig	No	No	
77	Non Commercial	Zhang et al, Detection of HBV RNA in Serum of Patients	HBV RNA	No	No	None
	G	H	I	J	K	L
1	Commercial status	Intended use	Current utility	Potential Future Utility	Necessity for Future Utility	Other Notes
28	International Markets, not	For the quantitative determination of Hepatitis B e Antigen (HBeAg)				
42	Does not appear to be fo	Screening and diagnosis of recent infection, monitoring of chronic hepatitis, Screening during pregnancy				http://www.biome
44	Outside of the USA and Canada					http://www.dia
50	Not for sale in the US and	Qualitative and quantitative detection of HBsAg in human serum or plasma. An aid for screening and diagnosis c				http://www.fujire
53	US only	Quantitative measurement of HBsAg may be used to confirm ongoing HBV replication and monitor responses to				http://www.qu
62	Only Singapore	assessing the amount of the Hepatitis B surface antigen (HBsAg) in chronic Hepatitis B patients.				http://www.quest
70	Not available for sale in t	Unclear				
72	Research Use Only	Quantitative detection of hepatitis B virus core-related antigen in serum or plasma.				https://www.fujire
77	None. Just a protocol	Lab research. Methods are described to extract a				http://link.springer

1 Main Sheet Tests by Marker 2 Blood Screening Tests Marker List Immunological and Other Markers

Regulatory Status of HBV Markers

HBV Forum Diagnostics Working Group - Landscape_MM.xlsx

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Comments Share

Soluble cluster of differentiation 40 (sCD40) is proteolytically cleaved from membrane-bound CD40 and binds to CD154, thereby inhibiting CD40-CD154-mediated immune responses. The aim of the present study was to clarify the role of sCD40 in chronic hepatitis B (CHB). The sCD40 levels in sera from 132 patients with CHB and 33 healthy individuals were retrospectively measured. sCD40 concentrations in patients with CHB were higher than those in healthy controls, and sCD40 levels correlated positively with serum levels of the liver dysfunction biomarkers alanine transaminase (ALT) and aspartate transaminase (AST). sCD40 concentrations increased with a rise in the severity of liver necroinflammation and fibrosis. Patients with >75% liver tissue staining positive for hepatitis B virus (HBV) antigen expression showed significantly lower sCD40 levels than those who stained negative for the HBV antigen. The area under the receiver operating characteristic curve of sCD40 was greater than that of ALT and AST; thus, sCD40 levels have a high diagnostic accuracy for detecting severe liver inflammation in patients with CHB, and could serve as an immunological marker of hepatic tissue injury.

	A	B	C	D	E	F	G	H	I	J
1	Proposed Marker	Paper	Author	Year	Pubmed link	Abstract	Conclusion	Other Notes		
2	ALT	Study on Evaluation of	Ikeda D, Sugawa M, Ki	2016	https://www.ncbi.nlm.nih.gov/pubmed/27111111	Nucleic acid amplification	ALT is a bad marker if you're using it to test for HBV			
3	sCD40	Serum soluble CD40 in	Shen HH1, Bai BK1, Wan	2015	https://www.ncbi.nlm.nih.gov/pubmed/26111111	Soluble cluster of differen	Some potential as marker of hepatic injury			
4	TLR2/4 in peripheral DC	Relationship between	Lu X1, Xu Q2, Bu X1, Ma	2014	https://www.ncbi.nlm.nih.gov/pubmed/25111111	This study is to explore th	May promote disease			
5	Serum IL1a	Use of serum levels of	Vukobrat-Bijedic Z, Mehr	2014	https://www.ncbi.nlm.nih.gov/pubmed/24111111	IL-1alpha was significantly	Assessment of inflammatory activity, may be possible to predict malignancy?			
6	Serum Resistin	High serum resistin at	Meng Z1,2, Zhang Y3, Wu	2017	https://www.ncbi.nlm.nih.gov/pubmed/28111111	Studies have revealed tha	Resistin can be use	Also looked at serum levels of ALT		
7	ALT	Rapid Alanine Amino	Kim EJ1, Yeon JF2, Kwor	2016	https://www.ncbi.nlm.nih.gov/pubmed/27111111	Sustained abnormal serum	Abnormal ALT can	Feels like a lot of statistics games in this paper.		
8	DLD	Hepatitis B Virus Cor	Jiang ZH1, Chen QY, Han	2016	https://www.ncbi.nlm.nih.gov/pubmed/26111111	The aim of this study was	HBV with BCP dou	Potential for use as another marker for HCC risk		

+ ≡ **1** Main Sheet Tests by Marker **2** Blood Screening Tests Marker List **Immunological and Other Markers**

Other

- On-going activities:
 - Review Article: Overview of HBV diagnostics (Maria Ma)
- Next steps:
 - Prioritization of unregistered markers
 - Connect with the other WG to validate priorities and discuss clinical utility of new markers

Questions



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Discussion

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