

(21) Application No:	2401655.2	(51) INT CL:	G16B 40/30 (2019.01)
(22) Date of Filing:	08.07.2022	(56) Documents Cited:	US 20070192039 A1 Mariette Awad ET AL, "Efficient Learning Machines: Theories, Concepts, and Applications for Engineers and System Designers", In: "Efficient Learning Machines: Theories, Concepts, and Applications for Engineers and System Designers", (2015-04-30), Apress Pittala Srivamshi ET AL, "Learning Context-aware Structural Representations to Predict Antigen and Antibody Binding Interfaces", bioRxiv, (2019-06-03), doi:10.1101/658054, Retrieved from the Internet: URL:https://www.biorxiv.org/content/10.1101/658054v1.full.pdf, [retrieved on 2021-11-18]
Date Lodged:	07.02.2024		
(30) Priority Data:			
(31) 63219578	(32) 08.07.2021	(33) US	
(86) International Application Data:	PCT/US2022/036517 En 08.07.2022		
(87) International Publication Data:	WO2023/009293 En 02.02.2023		
(71) Applicant(s):	AbCellera Biologics Inc. 2215 Yukon Street, Vancouver V5Y 0A1, British Columbia, Canada	(58) Field of Search:	INT CL C07K, G16B Other: EPO-Internal, WPI Data
(72) Inventor(s):	Christopher Thaddeus Hughes Valentine Julie Layla Bertrand De Puyraimond Thomas Roderick Docking Lucas Kraft Stefan Edward Hannie Kevin Richard Jepson Tomas Gogorza Jordan John Yap Alexander Sewall Ford		
(74) Agent and/or Address for Service:	EIP Fairfax House, 15 Fulwood Place, LONDON, WC1V 6HU, United Kingdom		

(54) Title of the Invention: **Antibody competition model using affinities of hidden variables**
Abstract Title: **Antibody competition model using affinities of hidden variables**

(57) Embodiments derive hidden variables based on antibody competition data to discover binding patterns. For example, antibody competition data for a plurality of antibodies and an antigen can be received, where the antibody competition data includes data values indicative of pairwise competition between antibodies. The antibody competition data can be processed to generate training data. Using the training data and an optimization engine, a plurality of hidden variables and affinity scores for the hidden variables can be derived, where affinity scores for the hidden variables are derived for each antibody and the hidden variables represent competition factors for the antigen that cause competition among the antibodies.

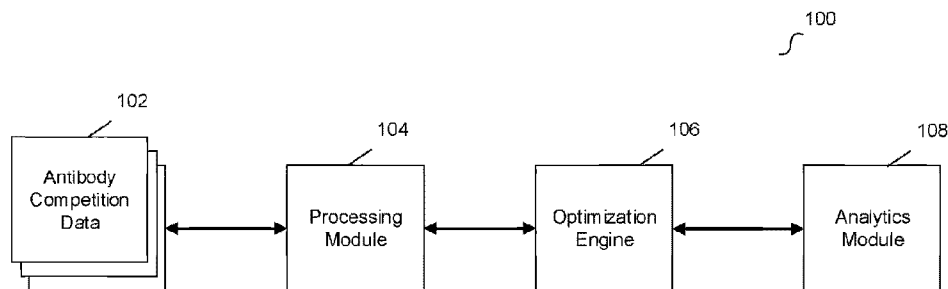


Fig. 1