

# IMMUNOPHENOTYPING REFERENCE TABLE

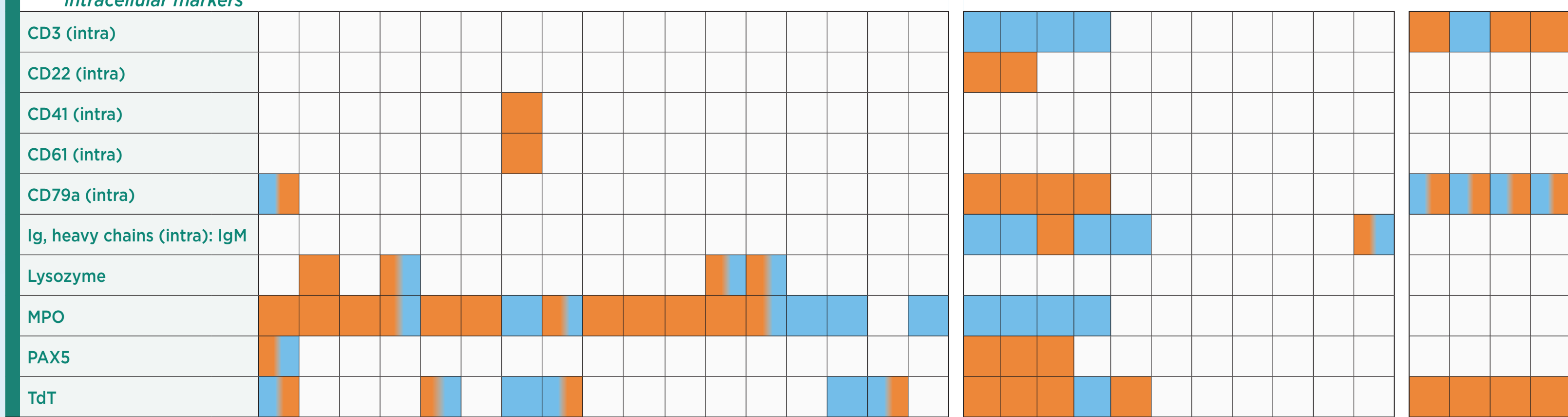
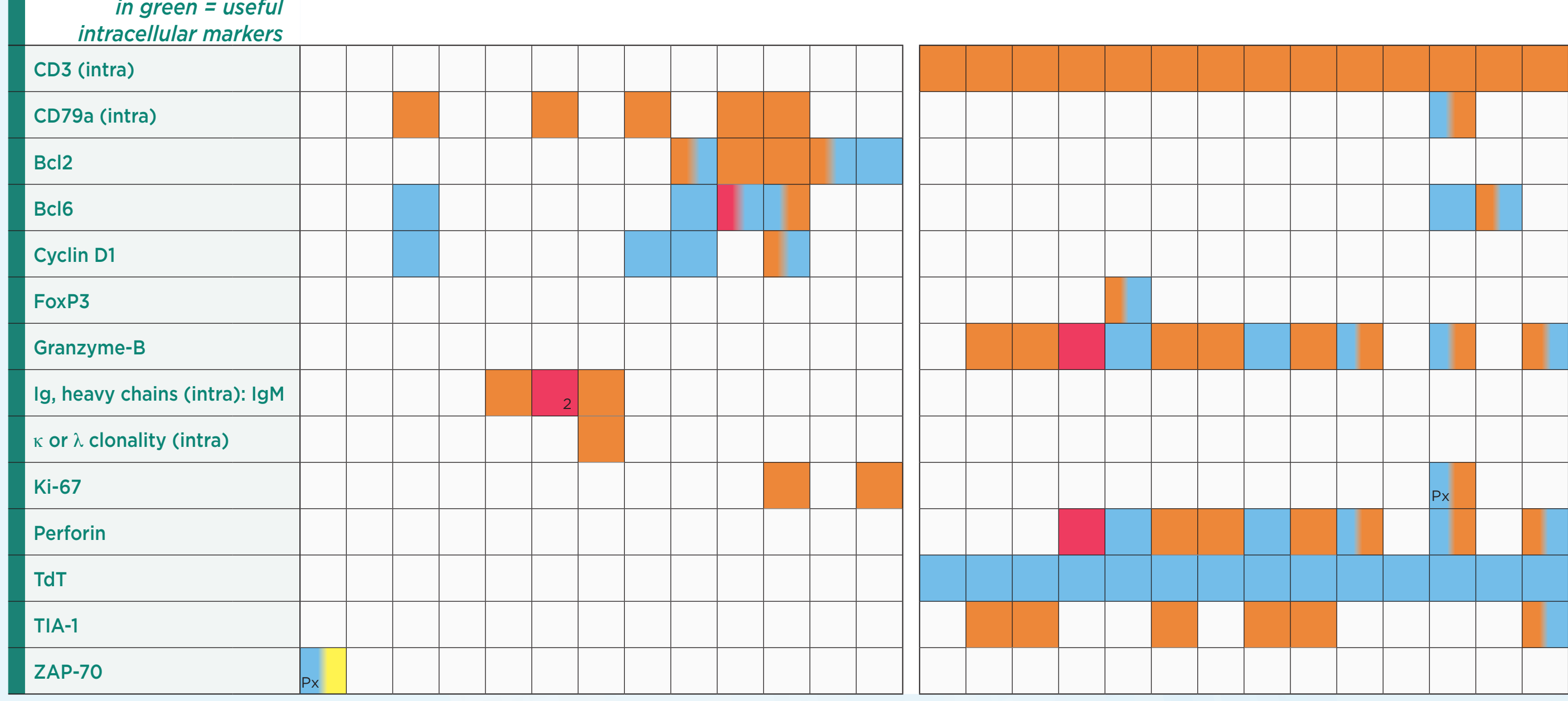
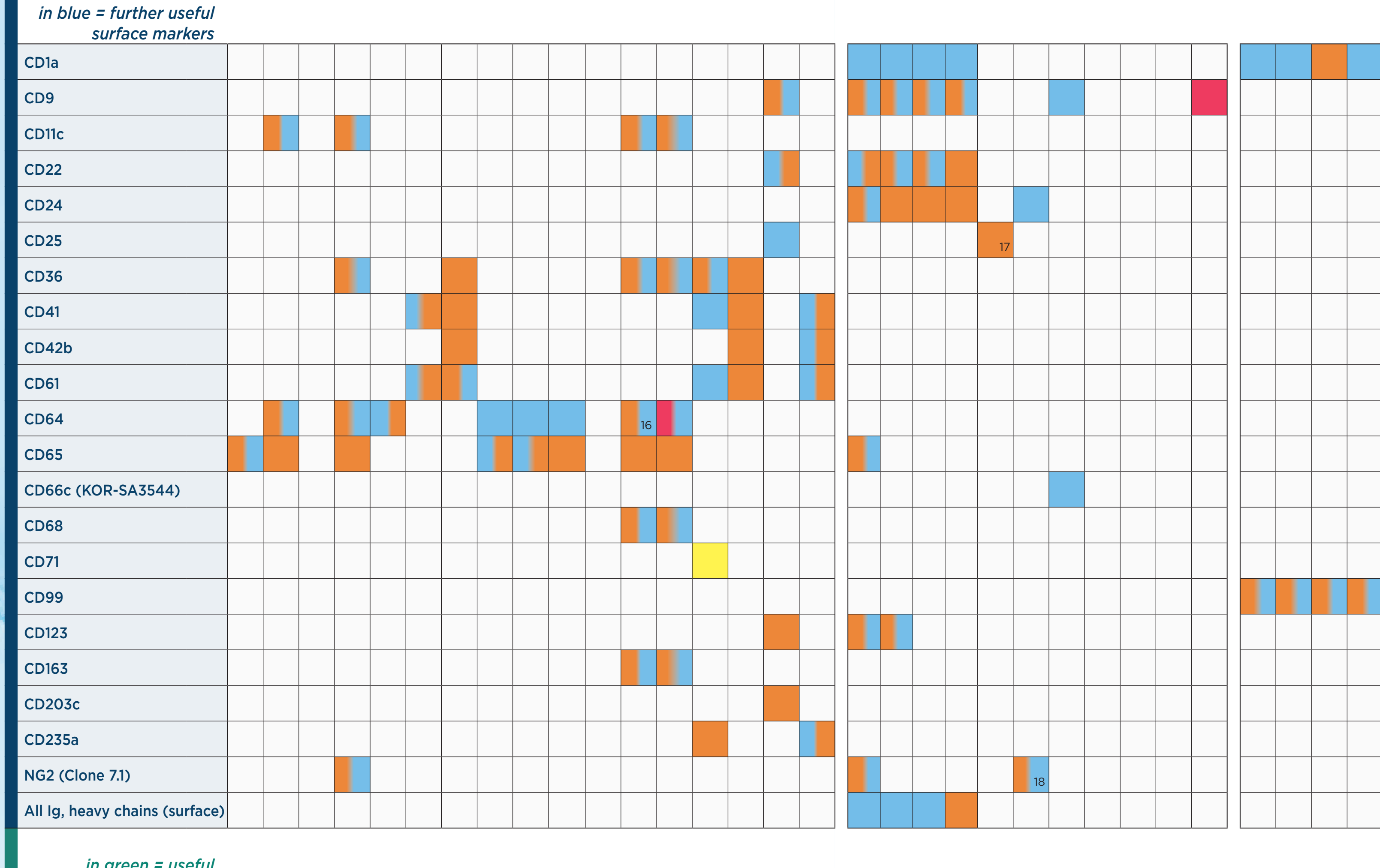
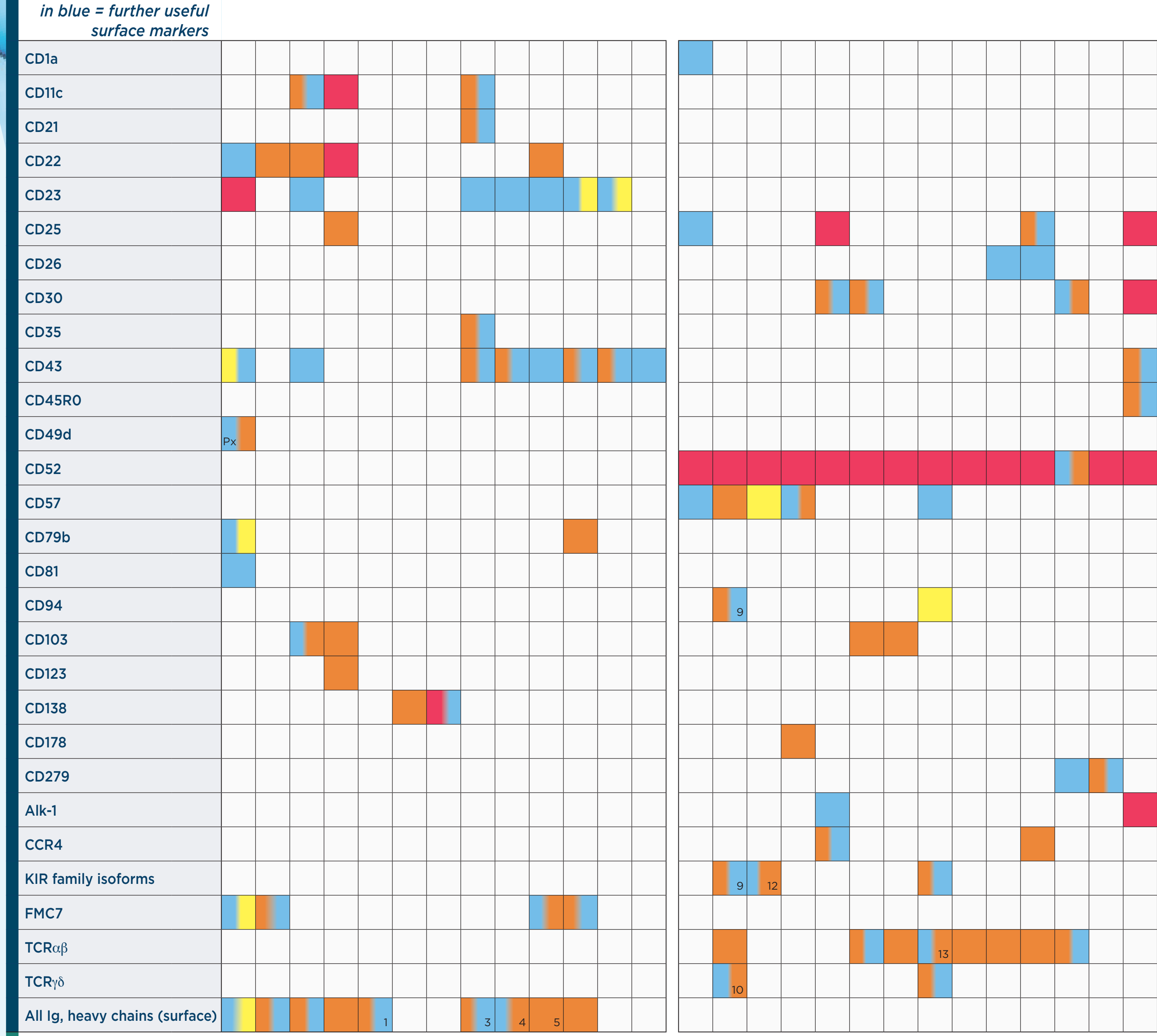
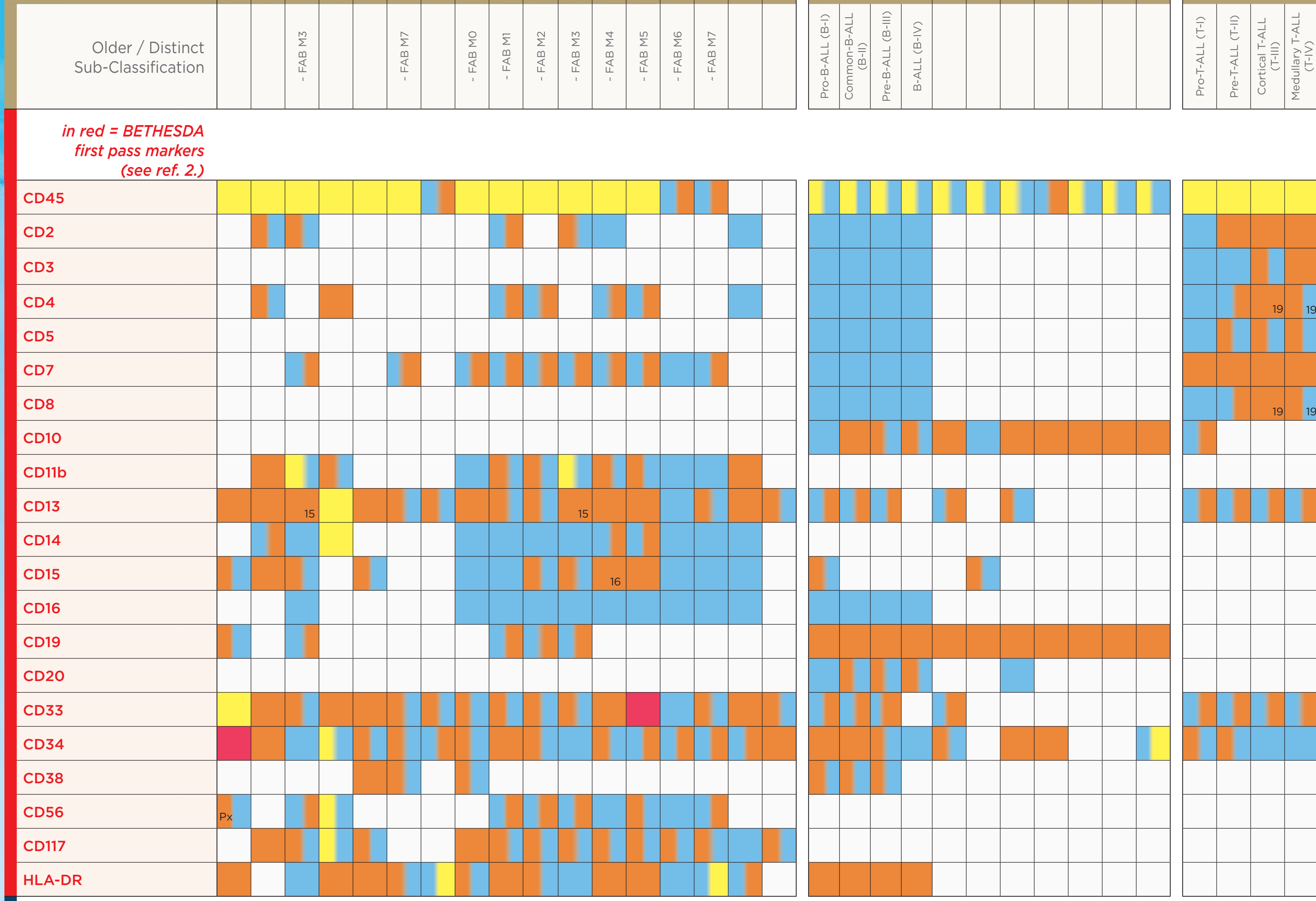
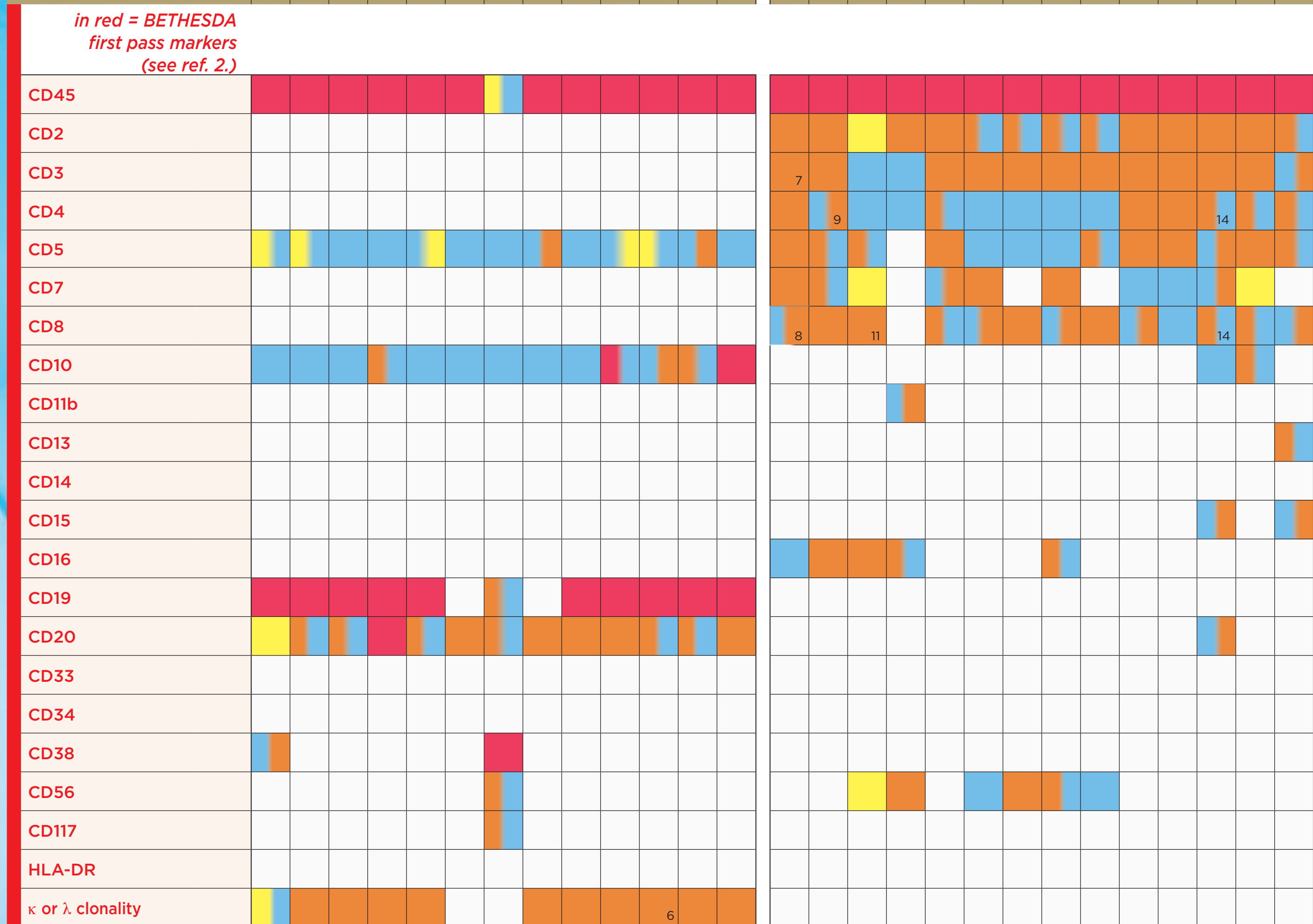
## FOR HAEMATOPOIETIC MALIGNANCIES

### CHRONIC

### ACUTE

DISEASES =>	Mature B-Cell Neoplasms	Mature T-Cell and NK-Cell Neoplasms
WHO 2008 Classification (see ref.1)	B-CLL/SLL B-Cell Prolymphocytic Leukemia Splenic Marginal Zone Lymphoma Hairy Cell Leukemia Lymphoplasmacytic Lymphoma Heavy Chain Diseases Plasma Cell Myeloma MALT Lymphoma Nodal Marginal Zone Lymphoma Follicular Lymphoma Mantle Cell Lymphoma Diffuse Large B-Cell Lymphoma, NOS Burkitt Lymphoma	T-Cell Prolymphocytic Leukemia T-Cell LGL Leukemia Chronic Lymphoproliferative Disorders of NK Cells Aggressive NK-Cell Leukemia Adult T-Cell Leukemia / Lymphoma Enteropathy-Associated T-Cell Lymphoma Type II Enteropathy-Associated T-Cell Lymphoma Hepatosplenic TCL Subcutaneous Panniculitis-Like TCL Mycosis Fungoides Sézary Syndrome Peripheral T-Cell Lymphoma, NOS Angioimmunoblastic T-Cell Lymphoma Anaplastic Large Cell Lymphoma, ALK positive
ICD-O code =>	9823/3 9833/3 9889/3 9840/3 9873/3 9822/3 9823/3 9899/3 9899/3 9880/3 9873/3 9880/3 9887/3	9854/3 9831/3 9837/3 9848/3 9827/3 9877/3 9877/3 9876/3 9808/3 9800/3 9870/3 9822/3 9852/3 9874/3

DISEASES =>	Acute Myeloid Leukemia	B Lymphoblastic Leukemia / Lymphoma	T Lineage
WHO 2008 Classification (see ref.1)	AML with t(8;21) AML with inv(16) APL with t(15;17) AML with t(9;11) AML with t(6;9) AML with inv(3) AML (megakaryoblastic) with t(1;22) AML NOS with minimal differentiation, NOS AML without maturation, NOS AML with maturation, NOS AML acute promyelocytic leukemia, NOS AML acute myelomonocytic leukemia, NOS AML acute monoblastic / monocytic leukemia, NOS AML acute erythrocytic leukemia, NOS AML acute megakaryoblastic leukemia, NOS AML acute basophilic leukemia, NOS AML acute panmyelosis with myelofibrosis, NOS	B-ALL / B-LBL, NOS  B-ALL / B-LBL with t(9;22) B-ALL / B-LBL with t(v;11q23) B-ALL / B-LBL with t(12;21) B-ALL / B-LBL with hyperdiploidy B-ALL / B-LBL with hypodiploidy B-ALL / B-LBL with t(15;14) B-ALL / B-LBL with t(11;9)	T Lymphoblastic Leukemia / Lymphoma
ICD-O code =>	9896/3 9897/3 9886/3 9897/3 9885/3 9889/3 9897/3 9872/3 9872/3 9874/3 9897/3 9897/3 9840/3 9897/3 9870/3 9897/3	9817/3 9817/3 9817/3 9817/3 9817/3 9817/3 9817/3 9817/3 9817/3 9817/3 9817/3	9837/3



**REFERENCES:**

- WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues, 4th Edition, Swerdlow SH, Campo E, Harris NL, Jaffe ES, Pileri SA, Stein H, Thiele J and Vardiman JW (Eds.): IARC Press, Lyon (2008).
- Wood BL, Arroz M, Barnett D, DiGiuseppe J, Greig B, Kussick SJ, Oldaker T, Shenkin M, Stone E and Wallace P: "2006 Bethesda International Consensus Recommendations on the Immunophenotypic Analysis of Hematolymphoid Neoplasia by Flow Cytometry: Optimal reagents and reporting for the flow cytometric diagnosis of hematopoietic neoplasia." Cytometry Part B (Clinical Cytometry), 72B:S14-22 (2007).

**Chart for icons**

Always positive	Dim when positive	Variable when positive	Bright when positive
Always negative	Most negative	Most positive	Always positive

1 Waldenström macroglobulinemia (CD-O code=9761/3) is found in a significant subset of patient suffering of LPL with BM involvement and an IgM monoclonal gammopathy of any concentration.  
 2 In Heavy Chain Diseases, intra Ig heavy chains are not always IgM.  
 3 Typically IgM+, and less often IgA+ or IgG+.  
 4 IgD is positive in a minority of the cases.  
 5 IgM+, IgD, IgG or rarely IgA.  
 6 More frequently with Lambda than Kappa restriction.  
 7 The membrane expression of CD3 may be weak.  
 8 25% of patients coexpress CD8 with CD4, a feature almost unique to T-PLL. 15% are CD4-neg, CD8-pos.  
 9 Expression of CD94/NKG2 and KIR families of receptors can be detected in 50% or more of cases.  
 10 Uncommon variants include CD4 TCRα/β-pos cases and TCRγ/δ-pos cases. Approximately 60% of the latter express CD8, the remainder are CD4/CD8-neg.

11 Abnormal uniform expression of CD8 can be seen.  
 12 KIR-pos cases preferentially express activating receptor isoforms.  
 13 If TCRα/β-positive, expect different immunophenotype for the rest of the markers.  
 14 A CD4-pos/CD8-neg phenotype predominates in nodal cases. CD4/CD8 double positivity or double negativity is at times seen.  
 15 CD15 with heterogeneous expression.  
 16 Co-expression of CD15 and strong CD64 is characteristic of monocytic differentiation.  
 17 CD25 is highly associated with t(9;22) B-ALL, at least in adults.  
 18 NG2 is characteristically expressed and is relatively, though not absolutely, specific.  
 19 The cortical T stage shows a double positive (CD4-pos/CD8-pos) phenotype. The medullary T stage expresses only either CD4 or CD8.

**KEYS:**

ALK	Anaplastic Lymphoma Kinase	LPL	Lymphoplasmacytic Lymphoma
ALL	Acute Lymphoblastic Leukemia	MALT	Mucosa-Associated Lymphoid Tissue
AML	Acute Myeloid Leukemia	NOS	Not Otherwise Specified
B-CLL/SLL	B-Cell Chronic Lymphocytic Leukemia / Small Lymphocytic Lymphoma	Px	Prognostics
B-LBL	B-Cell Lymphoblastic Leukemia	TCL	T-Cell Lymphoma
BM	Bone Marrow	T-LGL	T-Cell Large Granular Lymphocyte Leukemia
FAB	French American British	T-PLL	T-Cell Prolymphocytic Leukemia
ICD-O	International Classification of Diseases for Oncology codes, according to the 4th edition	WHO	World Health Organization



For Research Use Only. Not for use in diagnostic procedures.

© 2015 Beckman Coulter Life Sciences. All rights reserved. Beckman Coulter, and the stylized logo are trademarks of Beckman Coulter, Inc. and are registered with the USPTO. All other trademarks are the property of their respective owners.  
 For Beckman Coulter's worldwide office locations and phone numbers, please visit "Contact Us" at [beckmancoulter.com](http://beckmancoulter.com)  
 FLOW-1101PST09.15-A