BC Cancer Agency
CARE & RESEARCH
An agency of the Provincial Health Services Authority

Lymphoma Diagnosis

Based on Automated analysis of Flow Cytometry Data

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and

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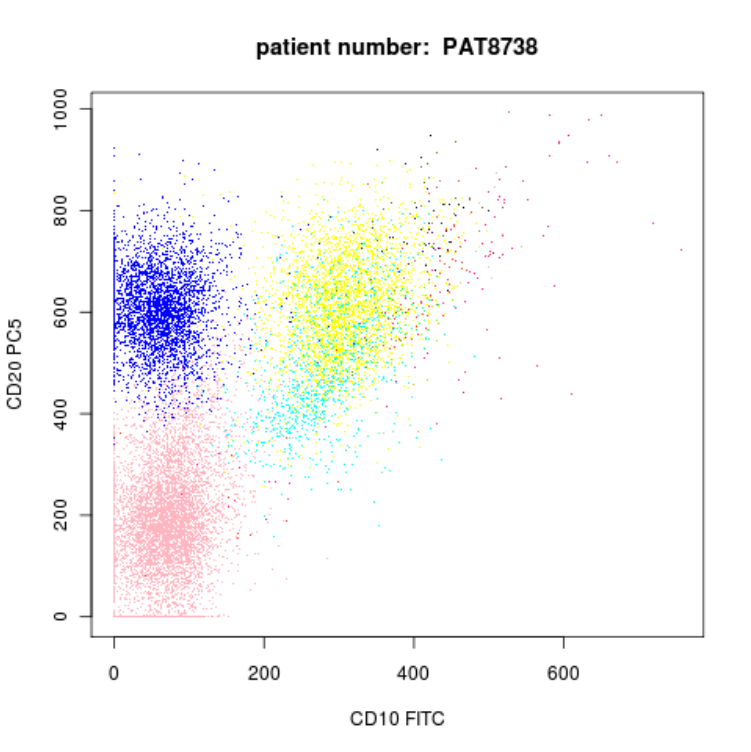
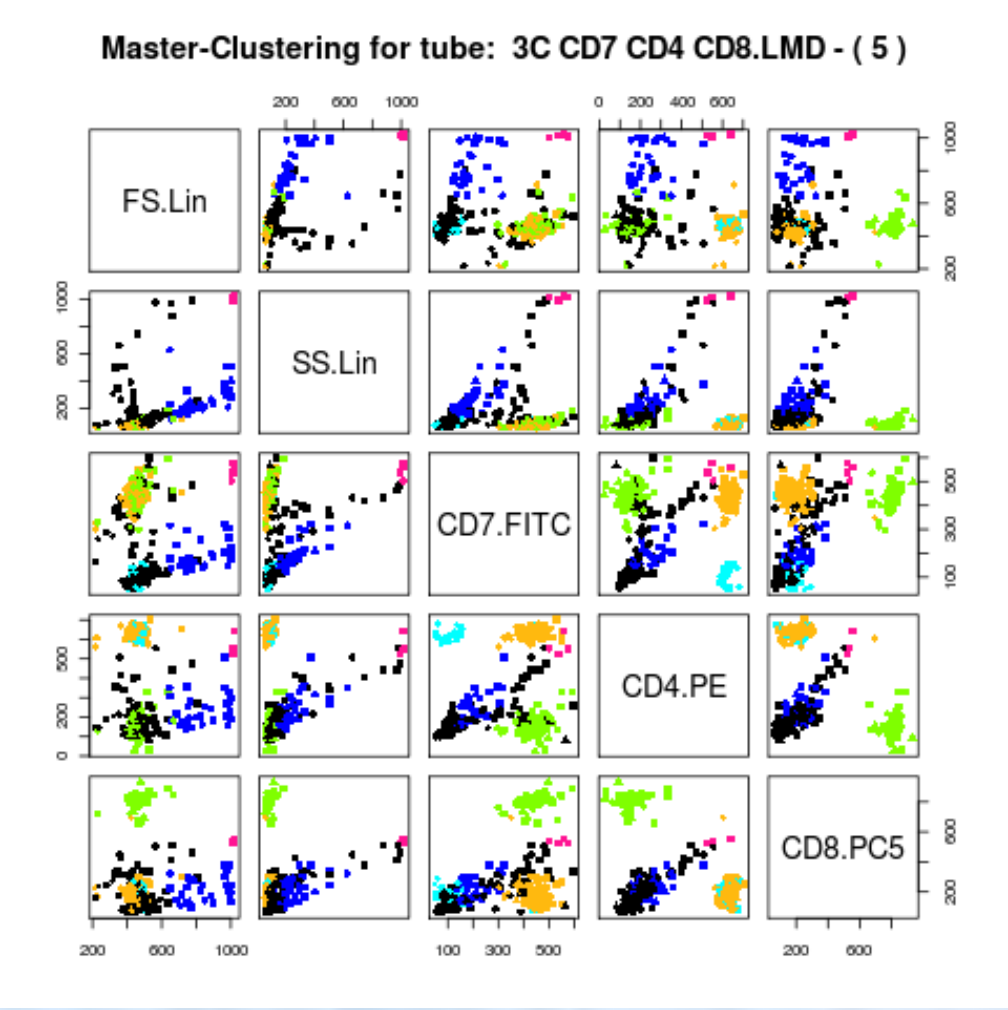
Flow Cytometry



Clustered by **SamSPECTRAL**



multi-dimensional

Method:

Challenge: Over 200 features with only samples → LASSO

$$\|Ax - y\|^2 + \lambda \|x\|_1$$

Result:

Table 1. Preliminary results of lymphoma classification of 100 random patients

			Predicted					
	type	Total	DLBC	follicular[1]	class_M[2]	SLL[3]	undetermined[4]	misclassified[5]
Actual	DLBC	28	**25 (89%)**	0	0	0	3 (11%)	**4**
	follicular	49	2 (4%)	**46 (94%)**	0	0	1 (2%)	**0**
	class_M	8	2(4%)	0	**5(63%)**	0	1(12%)	**0**
	SLL	15	0	0	0	**14(93%)**	1(12%)	**0**
	other	20	-	-	-	-	20	-

[1]follicular = {FOLL1, FOLL2, FOLL3A, FOLL33B, FSC-FOLL1, FM-FOLL2}
[2]class_M = {MALT, MCL, MCLD, MCLMZ, MCLN, MZLN, MZLS}
[3]SLL = {SLL, SLLV}
[4]undetermined: Patient did not score high enough in any category
[5]Misclassified for a group of diagnosis is the number of patients who are predicted to be in this group incorrectly. Except for DLBC, no patients were misclassified.
BOLD: The number of correctly diagnosed patients are bold numbers on the diagonal.