

**Supplementary Table S2**—Summary of individual case data.

No	Signalment	Abdominal U/S	Abdominal rads	Thoracic rads	Cytology, sites sampled	Additional diagnostics	Anemia	Neutropenia	Thrombocytopenia	Liver abn	Spleen abn	Visceral LAD	Treatment summary	% neoplastic cells <sup>§</sup>	Phenotype <sup>§</sup>	Class II MHC <sup>§</sup>	CD5 <sup>§</sup>	FS ratio <sup>§</sup>	TCR PARR results	Survival (days)	Survival status
1	4yo FS Mixed breed	x	x		Peripheral LN		Absent	Present	Present <sup>†</sup>	Absent	Absent	Present (single LN)	Doxorubicin	28	CD4	N/A	Positive	N/A	Possible clonal	71	Died
2	6yo MC Golden retriever	x	x	x	Liver, spleen	Resting cortisol	Absent	Absent	Present	Absent	Absent	Absent	Lspar, chlorambucil, prednisone	45	CD4	N/A	Positive	N/A	Clonal	262	Died
3	8yo MC Border Collie mix	x	x	x		Colon and SI endoscopic biopsies	Absent	Absent	Present	Absent	Absent	Absent	Lspar, vincristine, lomustine, prednisone	19	CD4	0.7	Positive	1.2	Clonal	389	Alive
4	8.6yo MI Golden retriever	x			Liver, spleen, abdominal LN		Present	Present	Present	Present	Present	Present	Unknown	62	CD4	0.5	Positive (low)	1.1	NA	NA	NA
5	5yo FS Boxer	x		x		Cervical U/S, ACTH stimulation test	Absent	Present	Present <sup>†</sup>	Present	Present	Absent	L-CHOP	88	CD4	0.5	Positive	1.1	Clonal	294	Died
6	7.3yo MC Golden retriever	x	x	x	Peripheral LN	Cervical U/S	Present	Present	Present <sup>†</sup>	Absent	Present	Absent	CHOP	23	CD4	0.4	Negative	1.0	Clonal	208	Died
7	5.7yo MC Collie	x		x	Liver, spleen	Resting cortisol, ACTH stimulation test	Absent	Unknown	Present	Absent	Absent	Absent	CHOP	54	CD4	0.2	Negative	1.0	NA	551	Alive
8	6yo MC Boxer mix			x	Peripheral LN		Absent	Present	Present	Unknown	Unknown	Unknown	Prednisone	70	CD4	1.6	Negative	1.4	Clonal	154	Died
9	5yo MC German shorthair	x					Present	Present	Present <sup>†</sup>	Absent	Present	Present	Unknown	89	CD4	0.3	Negative	1.0	Clonal	NA	NA

10	6.5yo FS Boxer mix	x		x			Absent	Present	Present <sup>†</sup>	Present	Absent	Absent	Vincristine, lomustine, prednisone	17	CD4-CD8-/CD4	5.1	Negative	1.3	Clonal	792	LTFU
11	4.5yo MC Golden retriever	x	x	x	Liver, spleen, peripheral LN	Cervical U/S	Absent	Unkno wn	Absent	Unkno wn	Unkno wn	Unkno wn	Unknown	9	CD4-CD8-	1.8	Negative	1.0	NA	25	LTFU

X, diagnostic test performed; <sup>†</sup>Blood smear reviewed, and thrombocytopenia confirmed; <sup>§</sup>neoplastic cells, phenotype, class II MHC and CD5 expression, and forward scatter (FS) size ratio of neoplastic cells:control bone marrow CD4 T cells were determined by flow cytometry.

abn, abnormalities; ACTH, adrenocorticotrophic Hormone; CHOP, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate, and prednisone; FS, female spayed; LAD, lymphadenopathy; LN, lymph node; Lspar, L-Asparaginase; L-CHOP, L-Asparaginase, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate, and prednisone; LTFU, lost to follow up; MC, male castrated; NA, not available; Rads, radiographs; SI, small intestinal; TCR PARR, T cell receptor PCR for antigen receptor rearrangements; U/S, ultrasound.