Supplementary

Table S1 The INTERCEPT for the 12 logistic regression models, as well as the Z values and P values for the features incorporated in these 12 models

Model	Intercept and features	Estimate	Z value	P value
1	Intercept	−1.367	−2.609	0.009
	wavelet_glcm_wavelet.HHH.Correlation	0.892	1.46	0.144
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	−1.028	−1.05	0.294
	recursivegaussian_firstorder_10Percentile	−0.367	−0.94	0.347
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.583	1.238	0.216
	discretegaussian_glrlm_LongRunEmphasis	−1.402	−1.451	0.147
	laplaciansharpening_glrlm_RunPercentage	1.133	1.888	0.059
	LDH	−1.66	−2.964	0.003
2	Intercept	−7.901	−1.187	0.235
	curvatureflow_gldm_LargeDependenceHighGrayLevelEmphasis	−30.606	−1.044	0.296
	wavelet_glcm_wavelet.HHL.JointEntropy	0.029	0.059	0.953
	laplaciansharpening_glszm_ZoneVariance	0.121	0.239	0.811
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.701	1.314	0.189
	recursivegaussian_glrlm_LowGrayLevelRunEmphasis	0.744	1.35	0.177
	wavelet_glcm_wavelet.HLH.MaximumProbability	−0.008	−0.015	0.988
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	−0.887	−0.838	0.402
	recursivegaussian_glcm_JointEnergy	−1.286	−2.06	0.039
	shotnoise_glszm_HighGrayLevelZoneEmphasis	−0.397	−0.794	0.427
	LDH	−1.191	−2.502	0.012
3	Intercept	−1.006	−2.106	0.035
	wavelet_glcm_wavelet.LHL.Idm	−0.139	−0.215	0.83
	recursivegaussian_glrlm_RunLengthNonUniformityNormalized	1.791	3.001	0.003
	wavelet_glcm_wavelet.HHH.Correlation	0.857	1.65	0.099
	log_glrlm_log.sigma.0.5.mm.3D.RunVariance	−1.6	−2.374	0.018
	wavelet_gldm_wavelet.HHH.HighGrayLevelEmphasis	0.783	0.344	0.731
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.836	1.228	0.219
	LDH	−0.935	−2.326	0.02
4	Intercept	−1.177	−2.403	0.016
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.863	1.668	0.095
	laplaciansharpening_glrlm_ShortRunEmphasis	1.638	2.585	0.01
	wavelet_glcm_wavelet.HHL.JointEntropy	−0.562	−1.298	0.194
	wavelet_glcm_wavelet.HHH.Correlation	0.631	1.066	0.287
	wavelet_gldm_wavelet.HHH.HighGrayLevelEmphasis	0.89	0.518	0.604
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	−0.417	−0.579	0.562
	recursivegaussian_glrlm_LowGrayLevelRunEmphasis	0.844	1.601	0.109
	LDH	−1.376	−3.04	0.002
5	Intercept	−1.205	−2.241	0.025
	laplaciansharpening_glszm_ZoneVariance	−0.083	−0.112	0.911
	recursivegaussian_glcm_Imc2	−1.457	−2.084	0.037
	wavelet_glcm_wavelet.HHL.JointEntropy	−0.914	−1.807	0.071
	recursivegaussian_glrlm_RunLengthNonUniformityNormalized	0.803	1.23	0.219
	wavelet_glcm_wavelet.HHH.Contrast	−0.523	−0.69	0.49
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	0.104	0.153	0.879
	wavelet_gldm_wavelet.HHL.DependenceEntropy	−0.432	−0.732	0.464
	laplaciansharpening_gldm_DependenceEntropy	1.796	1.769	0.077
	LDH	−1.848	−3.067	0.002
6	Intercept	−4078.74	−1.887	0.059
	recursivegaussian_glrlm_RunLengthNonUniformityNormalized	1.444	2.149	0.032
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	−0.942	−0.663	0.507
	wavelet_glcm_wavelet.HHL.Idn	−0.177	−0.287	0.774
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.512	1.018	0.308
	wavelet_glcm_wavelet.HHH.Correlation	0.424	0.742	0.458
	discretegaussian_glrlm_HighGrayLevelRunEmphasis	0.296	0.531	0.595

Table S1 *(continued)*

Table S1 *(continued)*

Model	Intercept and features	Estimate	Z value	P value
	curvatureflow_glszm_HighGrayLevelZoneEmphasis	−19036.5	−1.887	0.059
	laplaciansharpening_glszm_ZoneVariance	0.282	0.574	0.566
	shotnoise_glszm_HighGrayLevelZoneEmphasis	−0.52	−0.927	0.354
	LDH	−1.526	−2.708	0.007
7	Intercept	−0.81	−2.407	0.016
	wavelet_glcm_wavelet.HLL.Idm	−0.237	−0.401	0.689
	wavelet_glcm_wavelet.HHH.Correlation	1.003	1.885	0.059
	wavelet_gldm_wavelet.HLL.DependenceVariance	1.077	1.902	0.057
	LDH	−0.715	−1.949	0.051
8	Intercept	−0.886	−2.477	0.013
	recursivegaussian_glrlm_RunLengthNonUniformityNormalized	0.29	0.649	0.516
	normalize_glszm_LargeAreaHighGrayLevelEmphasis	−0.464	−0.765	0.444
	wavelet_glcm_wavelet.HHH.Correlation	0.463	0.932	0.351
	laplaciansharpening_gldm_DependenceEntropy	0.306	0.565	0.572
	wavelet_glcm_wavelet.HHL.ClusterTendency	0.408	0.936	0.349
	LDH	−1.055	−2.874	0.004
9	Intercept	−0.938	−2.336	0.019
	normalize_gldm_SmallDependenceLowGrayLevelEmphasis	0.458	0.879	0.38
	wavelet_gldm_wavelet.HLL.DependenceVariance	1.199	1.759	0.078
	wavelet_glcm_wavelet.HHL.Id	1.401	1.514	0.13
	recursivegaussian_glrlm_RunLengthNonUniformityNormalized	1.581	2.483	0.013
	wavelet_glcm_wavelet.HHH.Correlation	1.26	1.942	0.052
	recursivegaussian_glcm_Imc2	−0.658	−1.134	0.257
	wavelet_glcm_wavelet.HLL.Idm	−1.792	−1.421	0.155
	laplaciansharpening_glszm_ZoneVariance	0.455	1.102	0.271
	shotnoise_glszm_HighGrayLevelZoneEmphasis	−0.409	−0.829	0.407
	LDH	−0.87	−1.874	0.061
10	Intercept	−1.2	−2.554	0.011
	discretegaussian_glrlm_LongRunEmphasis	−1.731	−1.842	0.065
	wavelet_glcm_wavelet.HHH.Correlation	0.671	1.386	0.166
	laplaciansharpening_gldm_DependenceEntropy	0.251	0.577	0.564
	wavelet_glcm_wavelet.HHL.MaximumProbability	0.514	1.402	0.161
	LDH	−1.038	−2.716	0.007
11	Intercept	−1.508	−2.718	0.007
	curvatureflow_glszm_LowGrayLevelZoneEmphasis	0.901	1.77	0.077
	laplaciansharpening_glcm_DifferenceEntropy	2.154	2.751	0.006
	wavelet_gldm_wavelet.HLL.DependenceVariance	0.406	0.896	0.37
	wavelet_glrlm_wavelet.LHL.GrayLevelNonUniformityNormalized	1.716	0.966	0.334
	wavelet_glcm_wavelet.HHL.JointEntropy	−0.188	−0.403	0.687
	wavelet_glcm_wavelet.HHH.Correlation	0.592	0.97	0.332
	LDH	−1.63	−3.506	0
12	Intercept	−1.667	−2.591	0.01
	discretegaussian_glrlm_LongRunEmphasis	−3.13	−1.939	0.053
	wavelet_gldm_wavelet.HLL.DependenceVariance	1.259	1.153	0.249
	curvatureflow_gldm_DependenceNonUniformity	0.864	1.237	0.216
	mean_glcm_Id	0.298	0.319	0.75
	wavelet_firstorder_wavelet.HHH.90Percentile	−0.469	−0.573	0.567
	wavelet_glcm_wavelet.HLL.Idm	−1.531	−1.435	0.151
	discretegaussian_glrlm_HighGrayLevelRunEmphasis	−1.047	−1.919	0.055
	wavelet_glcm_wavelet.HHH.Correlation	0.794	1.234	0.217
	laplaciansharpening_gldm_DependenceEntropy	1.046	1.092	0.275
	wavelet_glcm_wavelet.HHL.MaximumProbability	0.249	0.495	0.62
	LDH	−1.391	−2.672	0.008

GLCM, gray-level co-occurrence matrix; GLDM, gray-level dependence matrix; GLRLM, gray-level run length matrix; GLSZM, gray-level size zone matrix; LDH, lactate dehydrogenase.

Table S2 Detailed results of a lymphoma classification model based on radiomic features

Method	Data set	Group	AUC (95% CI)	Sensitivity	Specificity	Accuracy	Precision	F1-score
LR	1	Training cohort	0.876 (0.785–0.967)	0.783	0.739	0.754	0.600	0.679
		Test cohort	0.809 (0.633–0.986)	0.800	0.636	0.688	0.500	0.615
	2	Training cohort	0.836 (0.735–0.938)	0.739	0.783	0.768	0.630	0.680
		Test cohort	0.700 (0.488–0.912)	0.700	0.636	0.656	0.467	0.560
	3	Training cohort	0.891 (0.807–0.976)	0.870	0.696	0.754	0.588	0.702
		Test cohort	0.627 (0.413–0.842)	0.700	0.545	0.594	0.412	0.519
	4	Training cohort	0.864 (0.771–0.957)	0.826	0.674	0.725	0.559	0.667
		Test cohort	0.677 (0.471–0.883)	0.600	0.682	0.656	0.462	0.522
	5	Training cohort	0.865 (0.772–0.957)	0.783	0.761	0.768	0.621	0.692
		Test cohort	0.691 (0.496–0.886)	0.600	0.727	0.688	0.500	0.545
	6	Training cohort	0.832 (0.730–0.933)	0.826	0.761	0.783	0.633	0.717
		Test cohort	0.859 (0.682–1.000)	0.800	0.773	0.781	0.615	0.696
	7	Training cohort	0.824 (0.708–0.941)	0.783	0.717	0.739	0.581	0.667
		Test cohort	0.745 (0.559–0.932)	0.700	0.682	0.688	0.500	0.583
	8	Training cohort	0.807 (0.697–0.918)	0.783	0.804	0.797	0.667	0.720
		Test cohort	0.836 (0.672–1.000)	0.800	0.818	0.812	0.667	0.727
	9	Training cohort	0.859 (0.764–0.954)	0.826	0.717	0.754	0.594	0.691
		Test cohort	0.805 (0.631–0.978)	0.800	0.818	0.812	0.667	0.727
	10	Training cohort	0.856 (0.761–0.952)	0.826	0.696	0.739	0.576	0.679
		Test cohort	0.768 (0.599–0.937)	0.800	0.682	0.719	0.533	0.640
	11	Training cohort	0.831 (0.722–0.940)	0.739	0.783	0.768	0.630	0.680
		Test cohort	0.695 (0.494–0.897)	0.500	0.773	0.688	0.500	0.500
	12	Training cohort	0.863 (0.773–0.953)	0.826	0.630	0.696	0.528	0.644
		Test cohort	0.791 (0.614–0.967)	0.800	0.682	0.719	0.533	0.640
QDA	1	Training cohort	0.865 (0.770–0.959)	0.783	0.717	0.739	0.581	0.667
		Test cohort	0.786 (0.609–0.964)	0.700	0.636	0.656	0.467	0.560
	2	Training cohort	0.782 (0.661–0.903)	0.739	0.652	0.681	0.515	0.607
		Test cohort	0.755 (0.540–0.969)	0.700	0.636	0.656	0.467	0.560
	3	Training cohort	0.803 (0.693–0.914)	0.783	0.674	0.710	0.545	0.643
		Test cohort	0.795 (0.625–0.965)	0.700	0.727	0.719	0.538	0.609
	4	Training cohort	0.855 (0.764–0.947)	0.870	0.609	0.696	0.526	0.656
		Test cohort	0.673 (0.463–0.882)	0.600	0.636	0.625	0.429	0.500
	5	Training cohort	0.824 (0.720–0.928)	0.783	0.761	0.768	0.621	0.692
		Test cohort	0.823 (0.678–0.967)	0.700	0.727	0.719	0.538	0.609
	6	Training cohort	0.795 (0.679–0.910)	0.739	0.761	0.754	0.607	0.667
		Test cohort	0.859 (0.710–1.000)	0.800	0.727	0.750	0.571	0.667
	7	Training cohort	0.818 (0.700–0.935)	0.739	0.848	0.812	0.708	0.723
		Test cohort	0.759 (0.582–0.936)	0.700	0.682	0.688	0.500	0.583
	8	Training cohort	0.805 (0.695–0.916)	0.783	0.783	0.783	0.643	0.706
		Test cohort	0.814 (0.665–0.963)	0.700	0.773	0.750	0.583	0.636
	9	Training cohort	0.800 (0.691–0.908)	0.783	0.696	0.725	0.562	0.655
		Test cohort	0.850 (0.715–0.985)	0.800	0.727	0.750	0.571	0.667
	10	Training cohort	0.841 (0.742–0.941)	0.826	0.696	0.739	0.576	0.679
		Test cohort	0.791 (0.634–0.948)	0.700	0.727	0.719	0.538	0.609
	11	Training cohort	0.821 (0.707–0.935)	0.826	0.587	0.667	0.500	0.623
		Test cohort	0.686 (0.497–0.875)	0.600	0.636	0.625	0.429	0.500
	12	Training cohort	0.805 (0.689–0.922)	0.783	0.717	0.739	0.581	0.667
		Test cohort	0.818 (0.659–0.978)	0.700	0.727	0.719	0.538	0.609

AUC, area under the curve; CI, confidence interval; LR, logistic regression; QDA, quadratic discriminant analysis.

Table S3 Detailed results of a lymphoma classification model based on radiomics features and clinical features

Method	Data set	Group	AUC (95% CI)	Sensitivity	Specificity	Accuracy	Precision	F1-score
LR	1	Training cohort	0.922 (0.862–0.983)	0.826	0.804	0.812	0.679	0.745
		Test cohort	0.782 (0.592–0.972)	0.700	0.682	0.688	0.500	0.583
	2	Training cohort	0.875 (0.789–0.962)	0.783	0.739	0.754	0.600	0.679
		Test cohort	0.695 (0.493–0.898)	0.600	0.682	0.656	0.462	0.522
	3	Training cohort	0.911 (0.844–0.978)	0.870	0.717	0.768	0.606	0.714
		Test cohort	0.573 (0.35–0.796)	0.500	0.500	0.500	0.312	0.385
	4	Training cohort	0.898 (0.82–0.976)	0.870	0.761	0.797	0.645	0.741
		Test cohort	0.677 (0.472–0.883)	0.500	0.636	0.594	0.385	0.435
	5	Training cohort	0.91 (0.828–0.993)	0.826	0.913	0.884	0.826	0.826
		Test cohort	0.686 (0.484–0.889)	0.500	0.773	0.688	0.500	0.500
	6	Training cohort	0.864 (0.772–0.956)	0.826	0.761	0.783	0.633	0.717
		Test cohort	0.814 (0.633–0.994)	0.800	0.773	0.781	0.615	0.696
	7	Training cohort	0.836 (0.728–0.945)	0.739	0.804	0.783	0.654	0.694
		Test cohort	0.791 (0.634–0.948)	0.800	0.682	0.719	0.533	0.640
	8	Training cohort	0.857 (0.764–0.95)	0.870	0.804	0.826	0.690	0.769
		Test cohort	0.827 (0.667–0.988)	0.800	0.773	0.781	0.615	0.696
	9	Training cohort	0.883 (0.799–0.967)	0.826	0.717	0.754	0.594	0.691
		Test cohort	0.773 (0.598–0.948)	0.700	0.682	0.688	0.500	0.583
	10	Training cohort	0.897 (0.824–0.969)	0.870	0.804	0.826	0.690	0.769
		Test cohort	0.768 (0.586–0.95)	0.600	0.682	0.656	0.462	0.522
	11	Training cohort	0.908 (0.825–0.992)	0.870	0.630	0.710	0.541	0.667
		Test cohort	0.645 (0.441–0.85)	0.600	0.591	0.594	0.400	0.480
	12	Training cohort	0.905 (0.83–0.979)	0.826	0.761	0.783	0.633	0.717
		Test cohort	0.795 (0.615–0.976)	0.600	0.682	0.656	0.462	0.522
QDA	1	Training cohort	0.886 (0.802–0.969)	0.783	0.783	0.783	0.643	0.706
		Test cohort	0.795 (0.614–0.977)	0.600	0.636	0.625	0.429	0.500
	2	Training cohort	0.797 (0.678–0.915)	0.696	0.717	0.710	0.552	0.615
		Test cohort	0.759 (0.545–0.973)	0.800	0.636	0.688	0.500	0.615
	3	Training cohort	0.818 (0.71–0.925)	0.783	0.630	0.681	0.514	0.621
		Test cohort	0.818 (0.661–0.976)	0.800	0.727	0.750	0.571	0.667
	4	Training cohort	0.879 (0.793–0.965)	0.826	0.674	0.725	0.559	0.667
		Test cohort	0.695 (0.495–0.895)	0.500	0.636	0.594	0.385	0.435
	5	Training cohort	0.843 (0.748–0.939)	0.783	0.761	0.768	0.621	0.692
		Test cohort	0.836 (0.697–0.975)	0.800	0.727	0.750	0.571	0.667
	6	Training cohort	0.809 (0.698–0.92)	0.739	0.739	0.739	0.586	0.654
		Test cohort	0.873 (0.742–1)	0.800	0.727	0.750	0.571	0.667
	7	Training cohort	0.828 (0.715–0.941)	0.739	0.804	0.783	0.654	0.694
		Test cohort	0.791 (0.635–0.947)	0.700	0.682	0.688	0.500	0.583
	8	Training cohort	0.82 (0.716–0.925)	0.783	0.783	0.783	0.643	0.706
		Test cohort	0.809 (0.655–0.963)	0.700	0.773	0.750	0.583	0.636
	9	Training cohort	0.808 (0.702–0.915)	0.739	0.674	0.696	0.531	0.618
		Test cohort	0.864 (0.738–0.989)	0.800	0.773	0.781	0.615	0.696
	10	Training cohort	0.864 (0.775–0.952)	0.870	0.717	0.768	0.606	0.714
		Test cohort	0.782 (0.619–0.945)	0.600	0.727	0.688	0.500	0.545
	11	Training cohort	0.847 (0.741–0.953)	0.826	0.674	0.725	0.559	0.667
		Test cohort	0.714 (0.533–0.894)	0.600	0.682	0.656	0.462	0.522
	12	Training cohort	0.817 (0.703–0.93)	0.826	0.717	0.754	0.594	0.691
		Test cohort	0.836 (0.693–0.98)	0.800	0.727	0.750	0.571	0.667

AUC, area under the curve; CI, confidence interval; LR, logistic regression; QDA, quadratic discriminant analysis.