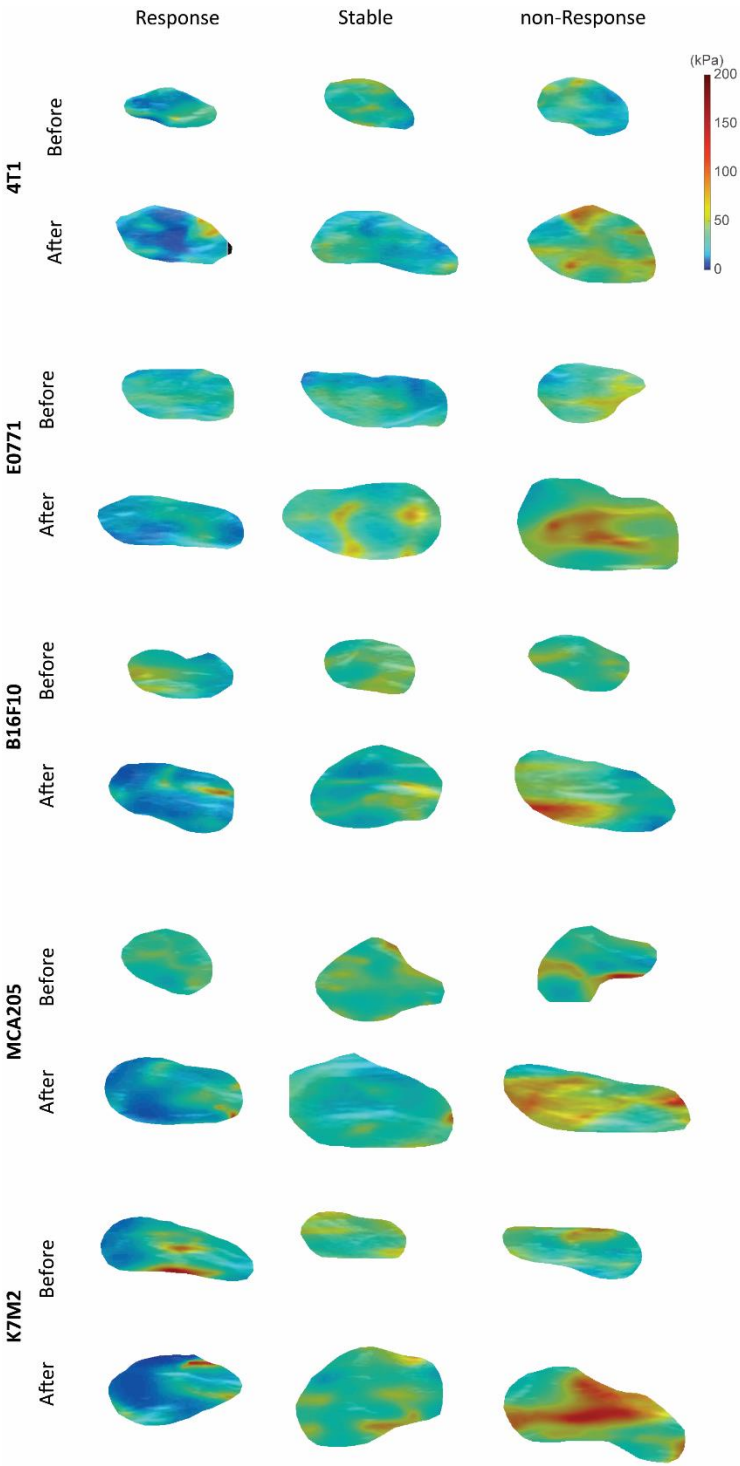
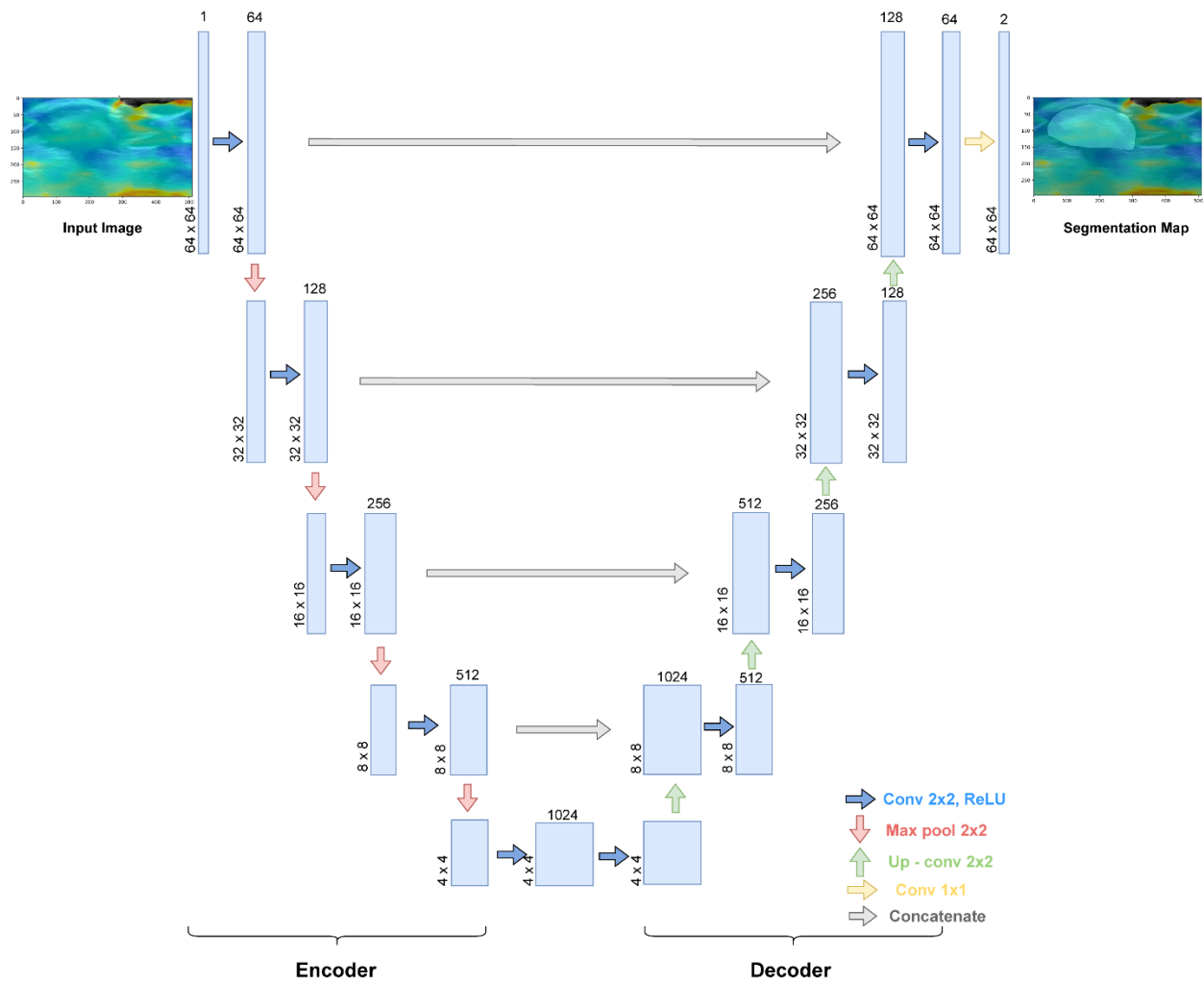


Supplementary figures

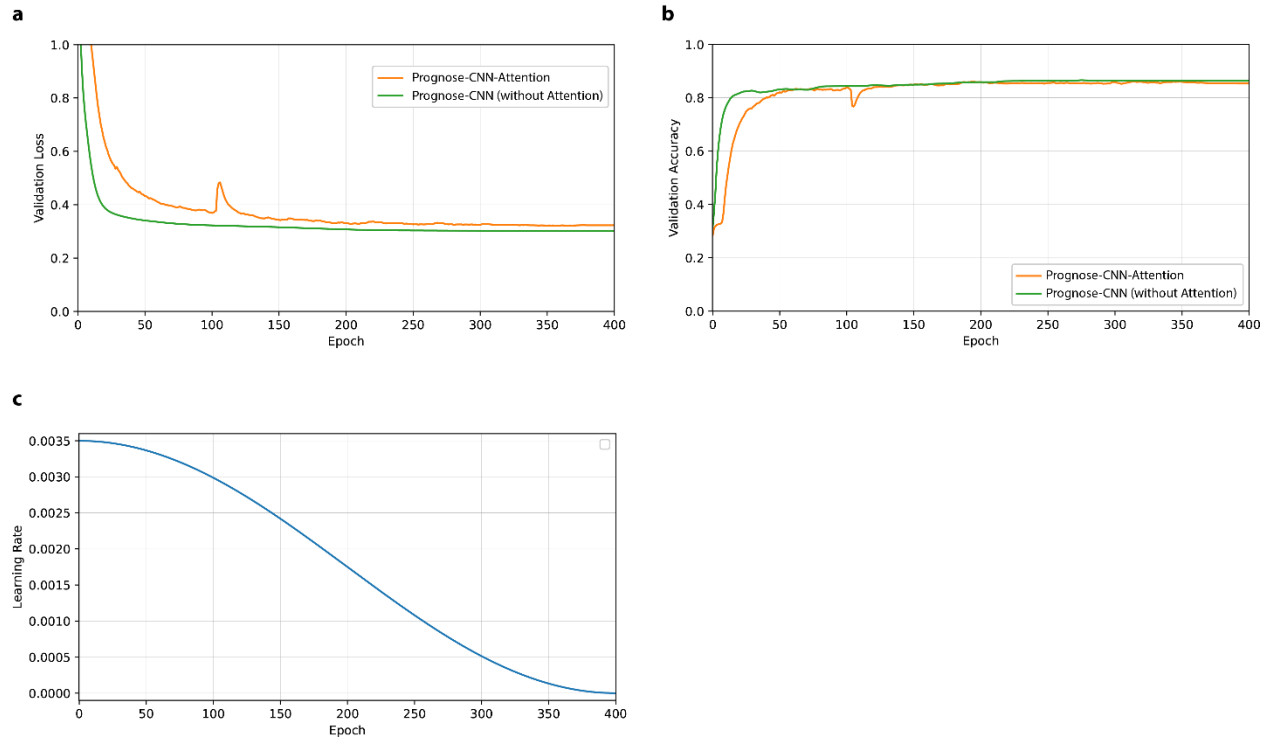
Supplementary Figure 1: Representative SWE image before and after mechanotherapy treatment.





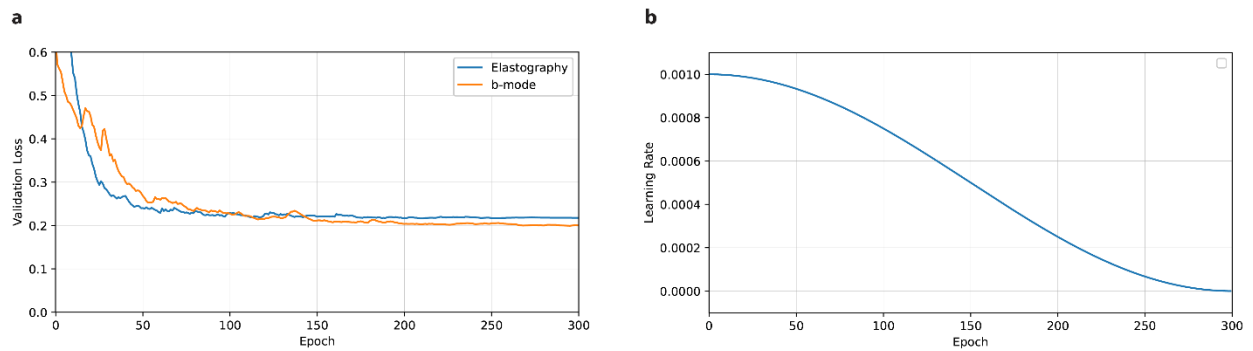
Supplementary Figure 2: **Tumor segmentation model architecture**

A shallow U-Net architecture for the tumor segmentation model with an encoder and a decoder. Less convolutional layers were used compared to the standard U-Net, to prevent overfitting in the training set.



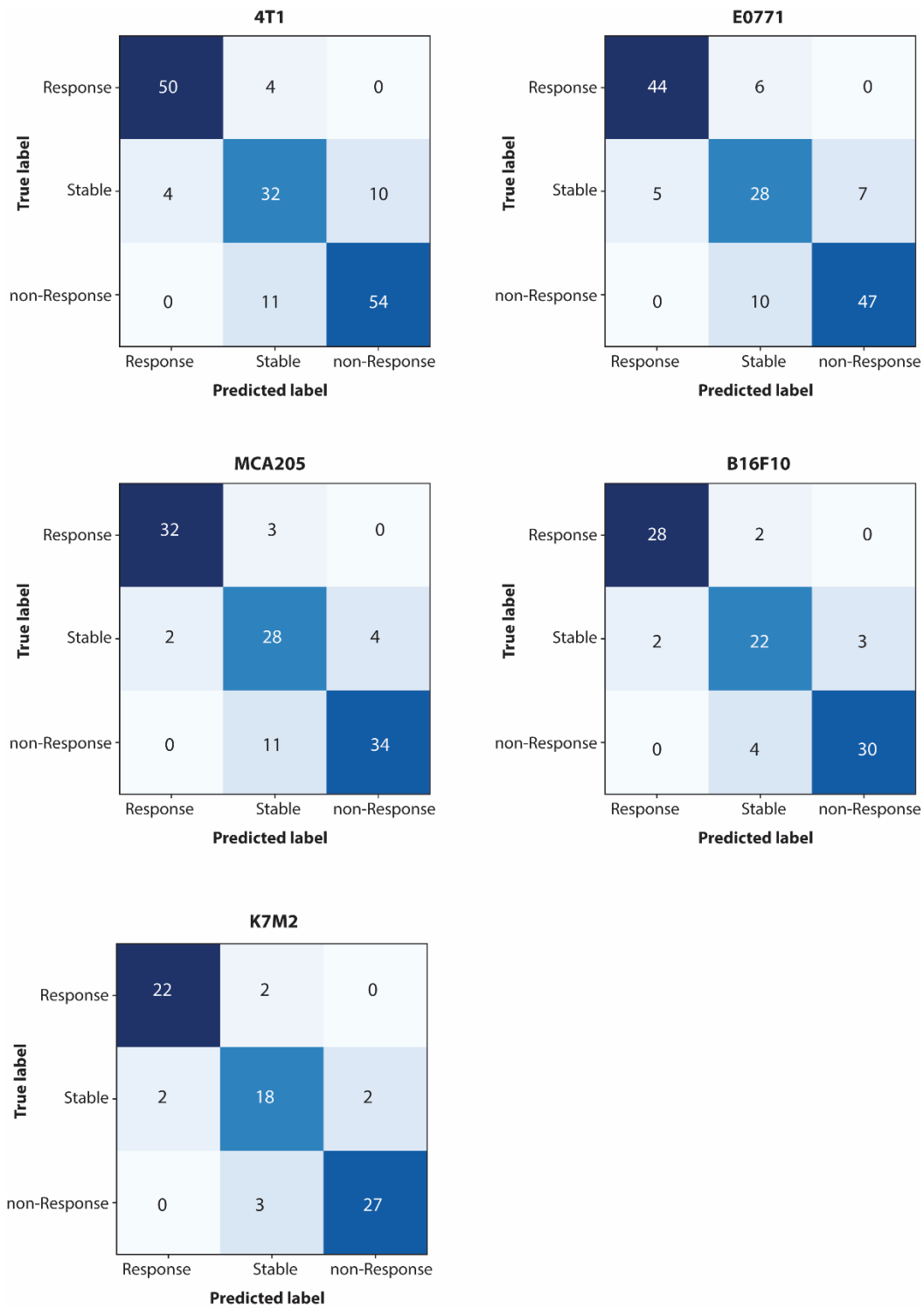
Supplementary Figure 3: Training process of the Prognose-CNN network classification models.

a Validation loss of the three models (sparse categorical cross-entropy function), **b** Validation accuracy and **c** Learning rate (cosine decay). By augmenting the training data and by adding an attention mechanism, the performance of the model improves.

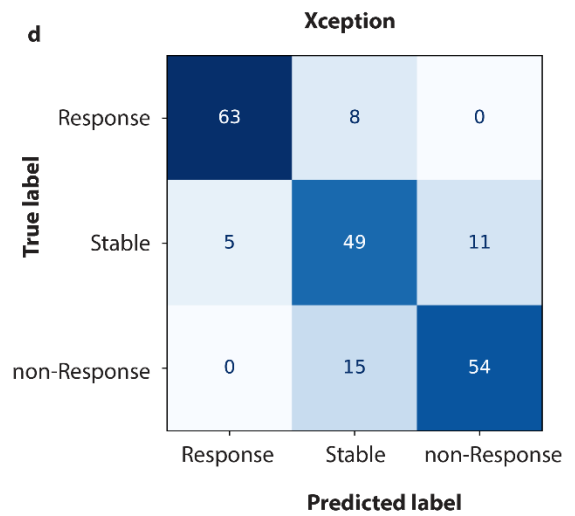
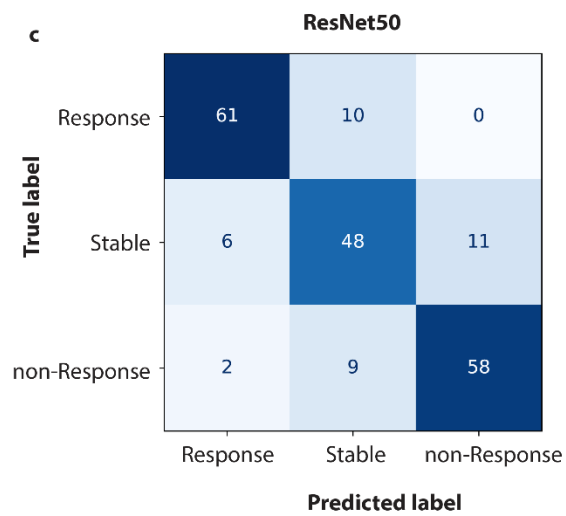
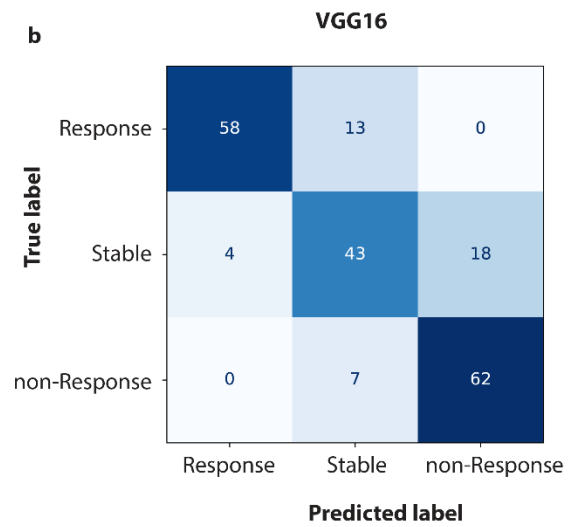
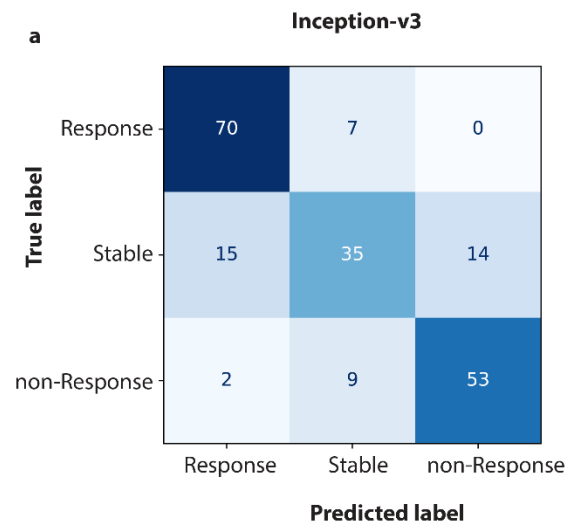


Supplementary Figure 4: Training process of the segmentation models.

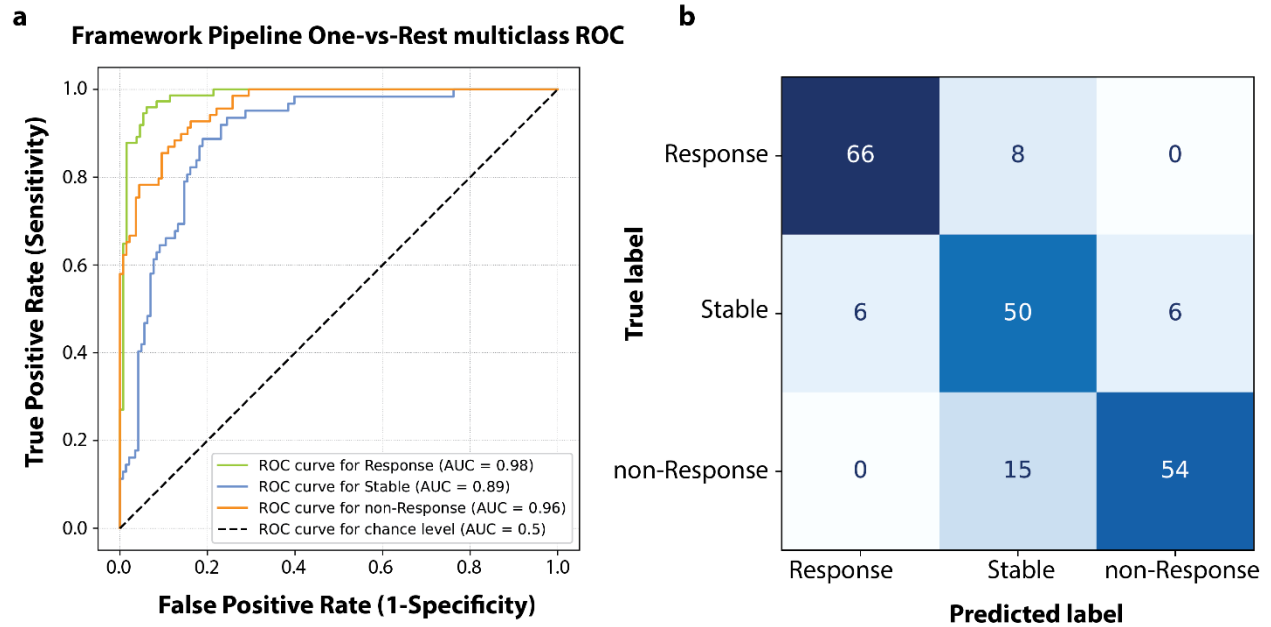
As the names imply, the two models take as input either SWE or B-mode images. **a** Validation loss of the two models (Dice coefficient loss function) and **b** Learning rate (cosine decay).



Supplementary Figure 5: Confusion matrix of the Prognose-CNNattention for each tumor type.

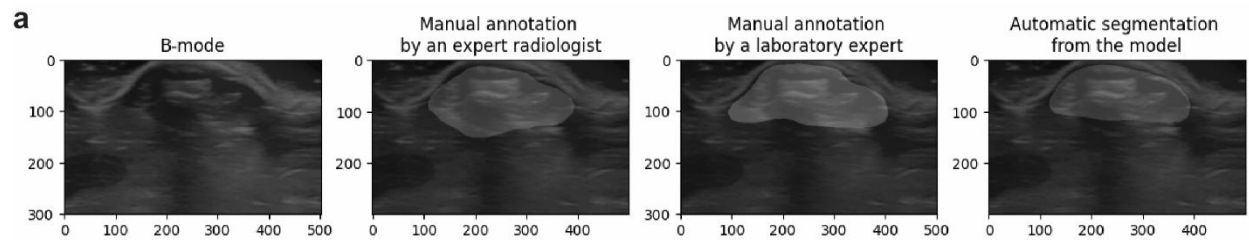


Supplementary Figure 6: *Confusion matrices of all pre-trained and fine-tuned architectures.*



Supplementary Figure 7: **Combined framework (Auto-Prognose-CNNattention) performance.**

a ROC curves of the three classes of the Auto-Prognose-CNNattention framework. **b** Confusion matrix of the Auto-Prognose-CNNattention framework. The inclusion of the tumor segmentation model in the Auto-Prognose-CNNattention framework results in a classification performance.

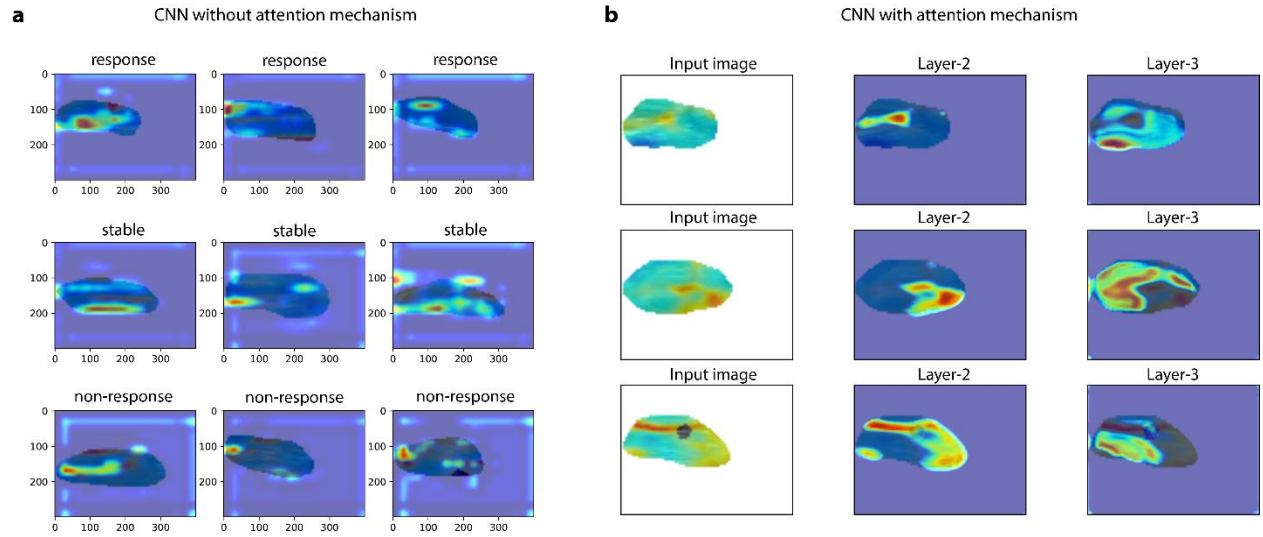


b

	Dice score	Dice score 2
Expert Radiologist and Laboratory Expert	0.8079	0.8235
Expert Radiologist and Automatic	0.8125	0.8255
Expert Radiologist and Laboratory Expert 2	0.7924	0.8153

Supplementary Figure 8: **Segmentations evaluation by experts:**

a Example segmentation maps with manual annotations by an expert radiation oncologist of the German Oncology Center in Cyprus and a laboratory experts, alongside the automatic segmentation produced by the model. **b** The level of agreement between the manual annotations of **a** was assessed using the dice score as well as the agreement between the manual annotation made by the laboratory experts, radiation oncologist and the automatic segmentation produced by the model.



Supplementary Figure 9: Models Interpretation.

a Heatmap visualization of the regions that the Prognose-CNN (without Attention) mechanism considered important using Grad-CAM technique. **b** Attention maps of the estimators of layers-2 and -3 of the Prognose-CNN-Attention model. The emphasis in the ROI is clear in **b**, where layers-2 and -3 focus in different regions of the image.

Supplementary Table 1: **Classification performance comparison of the architecture trained from scratch with state-of-the-art architectures in the test set.**

Model	Class	AUC	Accuracy	Sensitivity	Specificity	PPV	NPV
Prognose-CNNattention	Response	0.99	0.8683	0.9595	0.9618	0.9342	0.9767
	Stable	0.93		0.7749	0.9090	0.7869	0.9028
	Non-Response	0.97		0.8550	0.9338	0.8676	0.9270
Prognose-CNN (without Attention)	Response	0.99	0.8488	0.9189	0.9618	0.9315	0.9124
	Stable	0.92		0.7903	0.8741	0.7313	0.9058
	Non-Response	0.97		0.8260	0.9412	0.8769	0.9143
Auto-Prognose-CNNattention	Response	0.98	0.8293	0.8920	0.9542	0.9167	0.9398
	Stable	0.89		0.8065	0.8392	0.6849	0.9091
	Non-Response	0.96		0.7826	0.9559	0.9	0.8966
Xception	Response	0.97	0.8098	0.8873	0.9627	0.9265	0.9416
	Stable	0.85		0.7538	0.8357	0.7538	0.8357
	Non-Response	0.94		0.7826	0.9191	0.8307	0.8929
VGG16	Response	0.96	0.7951	0.8169	0.9701	0.9355	0.9091
	Stable	0.88		0.6615	0.8571	0.6825	0.8451
	Non-Response	0.94		0.8985	0.8676	0.7750	0.9440
Inception-V3	Response	0.95	0.7707	0.9091	0.8672	0.8046	0.9407
	Stable	0.85		0.5469	0.8865	0.6863	0.8117
	Non-Response	0.93		0.8281	0.9007	0.7910	0.9203
ResNet50	Response	0.96	0.8146	0.8591	0.9403	0.8841	0.9265
	Stable	0.86		0.7385	0.8643	0.7164	0.8768
	Non-Response	0.94		0.8406	0.9191	0.8406	0.9191