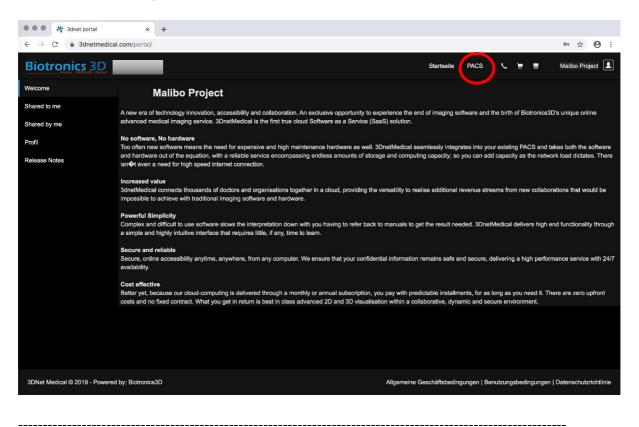
## Supplementary material 1. User manual for using 3D Biotronics platform

## User Manual for training radiologists to use 3D Biotronics platform

Go to Google Chrome and open https://www.3dnetmedical.com/portal.

Login with your username and password (make sure this is the username that you have been given that links you to the MALIBO study folder), go then to **PACS** (upper row on the left side)

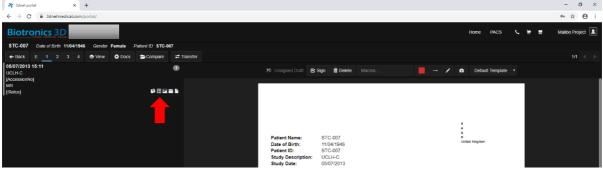


A window with 80 training cases will open

For individual sear, please use the **search bar**. We suggest: **STL-039 -070, -103, -211 STC-007, -089 (though overly does not work on this one), -096, -274** By double clicking a STL/STC case will open.

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	Patient Mime	Patient II	D Act	cession N	10.	Study Date		Date o	f Birth	Study	Description	Gender	Modality	Images	Institution	Reporting Physician(s)		Refe	min manue	(N= 15)			F
•+	STL-	STL-344				24/08/2016	5 15:05	01/01/	1971	BART	S-L	м	MR,PR	1616	St Bartholomews Ho.								
•+	STC-35 (Mr)	0108201	6			01/08/2016	5 13:44	14/09/	1931	RLHF	Research Pi	ot M	MR	1136	The Royal London H.								
•+	STL-336	STL-336	540	68662		22/07/2016	5 14:52	08/09/	1957	UCLH			MR,PR	14220	MacMillan Cancer C								
• +	STC-357	STC-357	540	70842		21/07/2010	15:05	13/03/	1939	UCLH		м	MR,PR	8580	MacMillan Cancer C.								
•+	STL-333	1.2.840.1	11 RP	Y013010	4418801	20/07/2016	5 10:01	01/01/	1753	Whole	Body^Stre	a F	MR	4257	Royal Marsden Hosp.								
•+	STL-311	STL-311	540	04478		17/06/2010	14:53	15/11/	1961	HOM			MR,PR	10481	MacMillan Cancer C								
•+	STL296	STL296				20/04/2010	5 09:34	01/01/	1753	e+1 M	IR Brain		MR	3068	HOMERTON								
•+	STC-315	STC315				13/04/2016	5 10:28	01/01/	1753	e+1 S	TREAMLIN		MR	6791	HOMERTON								
•+	STL-294	STL-294	538	93970		05/04/2016	5 15:02	20/03/	1950	PAH-L			MR,PR	7676	MacMillan Cancer C.,								
•+	STC-307	STC-307	538	68252		23/03/2016	11:52	09/02/	1957	MARK	(S-C		MR,PR	8860	MacMillan Cancer C.								
•+	STC-303	STC-303	538	29967		25/02/2016	14:20	05/05/	1938	UCLH			MR,PR	8551	MacMillan Cancer C								
•+	STL-267	STL - 26				16/02/2010	5 10:04	01/01/	1753				MR	5848	HOMERTON								
•+	BLUD0402-292, Blud04	02-2 BLUD04	0 BLI	JD0402-:	292	08/02/2016	5 14:42	24/09/	1983	CHAR	ING CROS	S F	MR	4763	CHARING CROSS								
•+	STL 258	1.2.840.1				12/01/2016	5 10:17	01/01/	1753	e+2 M	R Abdomer		MR	1784	HOMERTON								
•+	STC-274	STC-274				30/12/2015		05/05/	1964				MR,PR	9434	St Bartholomews Ho.								
	STC266	STC266				15/12/2015	5 10:01	01/01/	1753		IR Brain		MR	1776	HOMERTON								
	STL-245	STL-245		93641		30/11/2015	16:49	03/06/	1956	BCF-L			PR,MR	4679	MacMillan Cancer C								
	STL-245	STL-245		84375		25/11/2015	11:58	03/06/	1956	BCF-L			PR,MR	7791	MacMillan Cancer C.								
	STL-243	STL-243	536	75761		20/11/2015	5 14:38	04/01/	1944	UCLH			PR,MR	8766	MacMillan Cancer C								
+	STL-239	STL-239	536	66129		12/11/2015	i 14:51	27/04/	1939	UCLH			MR.PR	10889	MacMillan Cancer C								

## Chose the second icon from the left (Series) to open all given series



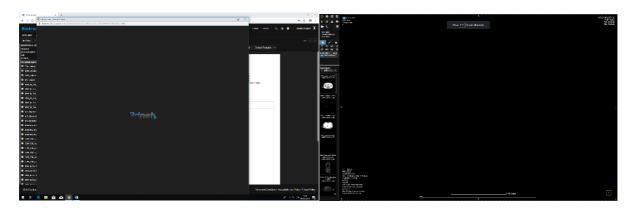
## -Select the appropriate images stated on the CRF sheet (T2 ax stack, DW ax stack, ADC ax stack, ML output if available), as well as other appropriate series (T1

dynamic liver, lung, head/neck) by checking the icon box

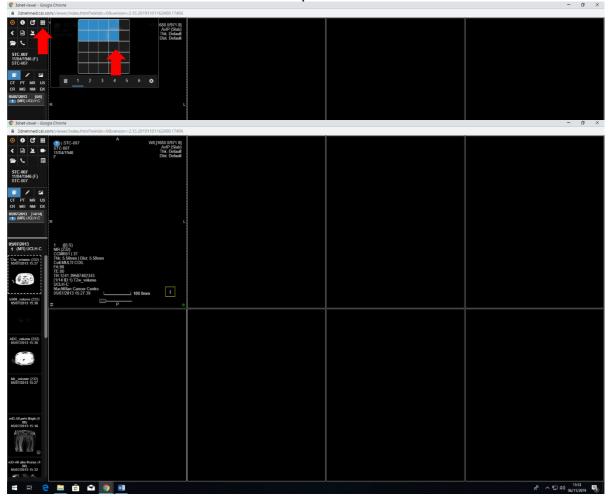
	Afterwards	click	View	to	open
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STC-007 Date of Birth 11/04	V1946 Gender Female	Patient II	STC-007				
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Z T2w_volume	Series Date Modality 05/07/2013 15:27 MR	232	Series ID				
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ML_volume	05/07/2013 15:27 MR	232	5	Patient Name:	STC-007	ŧ	
DWL4b_Tra_Abdo_ADC	05/07/2013 15:36 MR	40	51	Patient Name: Date of Birth:	STC-007 11/04/1946	Turited Kingdom	
DWL_4b_Tra_head_ADC	05/07/2013 15:51 MR	40	52	Patient ID:	STC-007		
DWI_4b_Tra_neck_ADC	05/07/2013 15:46 MR		53	Study Description Study Date:	n: UCLH-C 05/07/2013		
mD-W_pre_liver	05/07/2013 15:57 MR	88	801				
Gad-mD-W_dyn_liver	05/07/2013 15:59 MR	440	901				
sGad-mD-W_dyn_liver DYN01	05/07/2013 15:59 MR	88	902				
sGad-mD-W_dyn_liver DYN02	05/07/2013 15:59 MR		903				
SGad-mD-W_dyn_liver DYN03	05/07/2013 15:59 MR		904				
sGad-mD-W_dyn_liver DYN04	05/07/2013 15:59 MR	88	905				
3DNet Medical @ 2019 - Powerer	d by: Biotronics3D					Terms and Conditions   Acceptable Use P	olicy   Privacy Polic

After a new window has opened, you can click **F11** for full screen mode



Use the indicated icon on the sidebar to open a dedicated PACS interface



Choose sequences from the hanging protocol on the left sidebar by drag and drop.

The following image illustrates the recommended user layout for the readings

T2	DWI	ADC	T1
ML	Liver	Lung	Brain

ML = Machine Learning algorithm, please use DM5 as your primary output, RF5 is available as a secondary output for checking small lesions

Once you have established your own preferred layout, you can connect all sequences to scroll them together via:

Position all images at the same anatomic level then you must keep "**Ctrl+Shift**" down and select each chosen sequence by clicking them. Each selected window will be marked with blue outlines (choose perhaps only the volumes/stacks and ML)

Choose **right mouse button** and select the icon on the open window to link them.

You have to hold Ctrl+Shift down until the link is complete!

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● ● ●   <	1   STC-007 STC-007 11/04/1946 F	A W/L[1688.0/971.0] AvlP (Stab) Thk. Default Dist. Default	11/04/1946 F	A	W/L[1989.0/1145.0] AvlP (Slab) Thk. Default Dist. Default	1   STC-007 STC-007 11/04/1946 F	A WIL[288 0/166 0] AviP (Stab) Thk. Default Dist. Default	1   STC-007 STC-007 11/04/1946 F	W/L[1375.0/687.0] AviP (Slab) Thk. Default Dist. Default Time(1/4).No
STC-007 11/04/1946 (F) STC-007				<b>)</b> /					
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05/07/2013 1 (MR) UCLH-C	1 ([I]-S) MR (232) CCMR01   3T Thic 5.50mm   Dist 5.50mm CatMULTI COIL		2 ([]_S) MR (232) CCMR01   3T 🗐 🕞 Thk: 5.50mm Coit.MULTI C	0098	-	3 ([I]-S) MR (232) CCMR01   3T		1 ([S]-I) MR (266) CCMR01   3T Thit: 6.00mm   Dist: 3.00mm Colt MULTI COIL	
mD-All_BH lung2 (2 68) 05/07/2013 16:08	FA:90 TE:80 TR:1241.39587402343 (1/14 ID:1) T2w_volume UCLI+C		TE:69.18 TR:6297.556			CCMR01   3T CCMR01   3T Thk: 5.50mm   Dist: 5.50mm Col:MULTI COIL (3/14 ID:3) ADC_volume UCLI+C		FA:10 TE:0 TR:0 (10/14 ID:1002) mD-All_BH lung2 UCLH-C	
mD-All Head-neck (4	MacMillan Cancer Centre 05/07/2013 15:27:39	100.0mm [		Link Series/FoR (J)	, <u> </u>	MacMillan Cancer Centre 05/07/2013 15:36:05	266.7mm [	MacMillan Cancer Centre	1.1mm I
10-31 Head 1462 ( 9 05:07/2013 16:09	1   STC-007 STC-007 11/04/1946 F	A WAL[1598.0/919.0] AviP (Stab) Thk. Default Dist. Default	1   STC-007 STC-007 11/04/1946 F	A	W/L[1895.0/947.0] AvtP (Stab) Thic Default Dist: Default Time(000s/129s).No	1   STC-007 STC-007 11/04/1946 F	A W/L[1858.0929.0] M/L[1858.0929.0] Thic Default Dist. Default Time(1/4) No	1 5TC-007 5TC-007 11/04/1946 F	W/L[1644 0/946 0] AviP (Stab) Thk Default Dist. Default

Now you can scroll through the images.

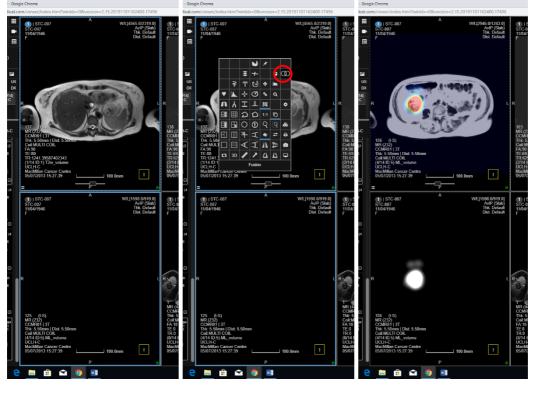
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For windowing, use **right mouse button** or select **W/L** in the right upper corner. This will open a new window, where the appropriate settings can be done.



To merge the T2 and the ML sequences together keep again **Ctrl+Shift** down and select both sequences by clicking them.

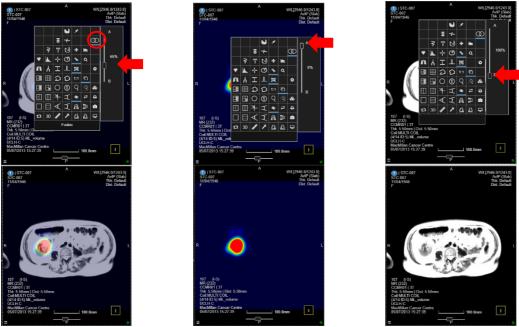
Afterwards, click with the **right mouse button over the T2 image (!)** and select the icon as indicated.



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Once you have created the merged image you can further adjust the balance to a certain side by selecting the icon again and adjust the threshold button on the right side. We recommend a 65% threshold selection.

In case of improper windowing of the anatomic sequence (T2), as in this particular example please load another T2 sequence into a different window



As all 80 training cases are from the Phase 2 trial have inconsistent sequences, there are some with four ML series! You can select and use all four in your training. Some cases have no ML output.

The DM5 should be merged together to the T2 sequence and used primarily for the reading as it has the highest specificity

The RF5 should be used secondarily and only to check for small lesions as it has high sensitivity, but low specificity.

<b></b>	26/06/2014 18:32PR	1	0
•	26/06/2014 18:33PR		
•	26/06/2014 18:33PR		
•	26/06/2014 18:34PR		
DW_volume	26/01/2014 00:00MR	230	
ADC_volume	26/01/2014 00.00MR	230	
DM_MERGED_k5_volume	26/01/2014 00:00MR	632	
DM_MERGED_k10_volume	26/01/2014 00:00MR	632	
RF_MERGED_k5_volume	26/01/2014 00:00MR	632	
RF_MERGED_k10_volume	26/01/2014 00:00MR	632	
mD-All pelv-thigh	26/06/2014 15:04MR	481	301
mD-All abo-thorax	26/06/2014 15:18MR	481	302
<b>-</b>			

Scoring the ML output.

During your phase 3 read, you will be asked to give "your opinion" in relation to the primary tumour position and stage, nodal stage and presence and position of mets. Once "your opinion" is recorded, you will be asked to go back and record what the ML output was like – on a score of 1 (no colour at all – no probability of cancer lesion), 2 (blue green colour – low probability of cancer lesion), 3 (orange, moderate probability of cancer lesion), 4 (red, high probability of cancer lesion). See examples below, score 2 for bowel, score 3 for bowel and score 4 for posterior mediastinum.

