Re: MRI scan with motor

Wed 8/08/2018 3:05 PM

To: Sofie Trajanovska <sofie.trajanovska@sydney.edu.au>; Xue Yin Zhang <xzha2203@uni.sydney.edu.au>;

Cc: Nana Sunn <nana.sunn@sydney.edu.au>; Binh Pham <binh.pham@sydney.edu.au>;

Thanks so much Sofie, Binh and Nana - we very much appreciate your time today doing these experiments and providing this summary!

After Xue Yin has had a chance to analyse the data, we'll let you know if we have any questions.

Andre

From: Sofie Trajanovska
Sent: Wednesday, 8 August 2018 1:45:14 PM
To: Andre Kyme; Xue Yin Zhang
Cc: Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi Andre and XueYin,

Please find the 7T scans here via this link:
https://cloudstor.aarnet.edu.au/plus/s/kDSey5UVbue3iEh

CloudStor - CloudStor is powered by AARNet

cloudstor.aarnet.edu.au

XueYin 7TMRI data is publicly shared

We did a SNR scan using the standard protocol provided in the Preclinical scan software with following parameters:
1 slice
Thickness of slice =3mm
FOV = 60mm x 60mm
Averages = 1
TE=11msec
TR=1000msec
Echo spacing = 11

1341 = Phantom (water only)

Air motor
Positioned ~0.5cm from start of phantom

1343 = Phantom + air motor off

1344 = Phantom + air motor on #1 scan
1345 = Phantom + air motor on #2 scan
1346 = Phantom + air motor on #3 scan

1347 = Phantom + air motor on, compressor off (note:motor not spinning)

1348 = Phantom + air motor off #1 scan
1349 = Phantom + air motor off #2 scan
1350 = Phantom + air motor off #3 scan

note: Air motor position changed to ~1.5cm from end of phantom
1351 = Phantom + air motor on, compressor off #1 scan (0.75Bar)
1352 = Phantom + air motor on, compressor off #2 scan (0.75Bar)
Pump jammed so didn't collect third scan

Ceramic motor
positioned ~2.4cm from start of phantom
1354 = Phantom + ceramic motor off #1 scan
1355 = Phantom + ceramic motor off #2 scan
1356 = Phantom + ceramic motor off #3 scan

1357 = Phantom + ceramic motor on #1 scan
1358 = Phantom + ceramic motor on #2 scan
1359 = Phantom + ceramic motor on #3 scan

Piston motor
1362 = Phantom + piston motor off #1 scan
1363 = Phantom + piston motor off #2 scan
1364 = Phantom + piston motor off #3 scan

1365 = Phantom + piston motor on #1 scan
1366 = Phantom + piston motor on #2 scan
1367 = Phantom + piston motor on #3 scan

Linear slide
1369 = Phantom + linear slide #1 scan
1370 = Phantom + linear slide #2 scan
1371 = Phantom + linear slide #3 scan

Encoder
1373= Phantom + encoder #1 scan
1374= Phantom + encoder #2 scan
1375= Phantom + encoder #3 scan

Water phantom alone (50mL Falcon tube)
1377= Phantom #1 scan
1378= Phantom #2 scan
1379= Phantom #3 scan

Thank you,
Sofie

From: Andre Kyme
Sent: Wednesday, 1 August 2018 11:51:54 AM
To: Sofie Trajanovska; Xue Yin Zhang
Cc: Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Thanks Sofie,

Andre

From: Sofie Trajanovska
Sent: Wednesday, 1 August 2018 11:51:36 AM
To: Xue Yin Zhang; Andre Kyme
Cc: Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Yes please. See you both then.

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From: Andre Kyme
Sent: Wednesday, August 1, 2018 11:46:41 AM
To: Sofie Trajanovska; Xue Yin Zhang
Cc: Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi,

Yes, I could do Wed 9:30, Aug 8th.
Should we just meet you in the CPC foyer?

Andre

From: Sofie Trajanovska
Sent: Tuesday, 31 July 2018 1:02:52 PM
To: Xue Yin Zhang
Cc: Andre Kyme; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Thank you, Xue Yin.

How does Wednesday 8th August at 9:30am sound? Andre are you available?

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From: Xue Yin Zhang <xzha2203@uni.sydney.edu.au>
Sent: Tuesday, July 31, 2018 12:57:00 PM
To: Sofie Trajanovska
Cc: Andre Kyme; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Sure,

Monday 6th all day

Tuesday 7th before 2pm
Wednesday 8th before 2pm
Friday 10th all day

Best,
Xue Yin

On 31 Jul 2018, at 12:55 pm, Sofie Trajanovska <sofie.trajanovska@sydney.edu.au> wrote:

> Hi Xue Yin,
>
> Can you please give us a few time options of when you will be available next week?
>
> Thank you,
> Sofie
>
> Get Outlook for Android

From: Xue Yin Zhang <xzha2203@uni.sydney.edu.au>
Sent: Tuesday, July 31, 2018 12:40:44 PM
To: Sofie Trajanovska
Cc: Andre Kyme; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi Sofie,

I've got class 2-4 on Tuesdays and Wednesdays. Thank you for letting us know about openings!

Xue Yin

On 31 Jul 2018, at 12:21 pm, Sofie Trajanovska <sofie.trajanovska@sydney.edu.au> wrote:

> Hi Andre and Xue Yin,
>
> How about 2 pm on Tuesday 7th?
>
> Thank you,
> Sofie

From: Andre Kyme <andre.kyme@sydney.edu.au>
Date: Monday, 30 July 2018 at 12:22 pm
To: Xue Yin Zhang <xzha2203@uni.sydney.edu.au>, Sofie Trajanovska <sofie.trajanovska@sydney.edu.au>
Cc: Nana Sunn <nana.sunn@sydney.edu.au>, Binh Pham <binh.pham@sydney.edu.au>
Subject: Re: MRI scan with motor

Sorry about that Sofie, but it looks like Thursday won't work. Please keep us in mind if another opening becomes available in the next couple of weeks.

Thanks,

Andre

From: Xue Yin Zhang <xzha2203@uni.sydney.edu.au>
Sent: Monday, 30 July 2018 11:47:56 AM
To: Andre Kyme; Sofie Trajanovska
Cc: Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi all,

This Thursday is the second-last day at my job (doing code handover), unfortunately.

Xue Yin

From: Andre Kyme <andre.kyme@sydney.edu.au>
Sent: Monday, 30 July 2018 11:40:28 AM
To: Sofie Trajanovska
Cc: Xue Yin Zhang; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi Sofie,

Thanks for getting back to us. I am free on Thursday afternoon from 2 pm.
Xue Yin, does Thursday work for you?

Andre

From: Sofie Trajanovska
Sent: Monday, 30 July 2018 11:35:59 AM
To: Andre Kyme
Cc: xzha2203@uni.sydney.edu.au; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi Andre,

Apologies for our delay in getting back to you, but we have some time available on the 7T MRI this Thursday afternoon from 2pm. Will you and Xue Yin be available to scan your motor and phantom then?

Please let us know and we can book you in.

Kind regards,
Sofie

From: Andre Kyme <andre.kyme@sydney.edu.au>
Date: Thursday, 5 July 2018 at 4:59 pm
To: Sofie Trajanovska <sofie.trajanovska@sydney.edu.au>
Cc: "xzha2203@uni.sydney.edu.au" <xzha2203@uni.sydney.edu.au>, Nana Sunn <nana.sunn@sydney.edu.au>, Binh Pham <binh.pham@sydney.edu.au>
Subject: Re: MRI scan with motor

Hi Sofie,

Yes, I could do 2:30 tomorrow. Shall I just meet you in the CPC lobby?

Thanks,

Andre

From: Sofie Trajanovska
Sent: Thursday, 5 July 2018 3:44:57 PM
To: Andre Kyme
Cc: xzha2203@uni.sydney.edu.au; Nana Sunn; Binh Pham
Subject: Re: MRI scan with motor

Hi Andre,

Apologies for late notice, but are you around tomorrow afternoon at 2:30pm to have a look at the 7T? Otherwise next week Monday morning 10am may work.

Thank you,
Sofie

On Tue, Jul 3, 2018 at 12:35 PM +1000, "Andre Kyme" <andre.kyme@sydney.edu.au> wrote:

> Hi Sofie,
>
> Thanks for getting back to us. Yes, if you could let us know your availability that would be great. We're happy to be as flexible as possible. I think the scans should all be done in an hour or two.
>
> Sounds like it would be a good idea to check the design of the 7T first. Is there a time I can take a quick look?
>
> Thanks for your help,
> Andre
>
> ---
>
> **From:** Sofie Trajanovska
> **Sent:** Tuesday, 3 July 2018 10:24:11 AM
> **To:** Andre Kyme
> **Cc:** xzha2203@uni.sydney.edu.au; Nana Sunn; Binh Pham
> **Subject:** Re: MRI scan with motor
>
> Hi Andre,
>
> Unfortunately, we won't be available to assist on the date/times you have nominated. We are currently involved in the installation of new instruments and training in Preclinical and have been juggling this with providing support to other projects in our space. Our calendar for July is completely full so I will have to get back to you with a proposed date! In saying that, we should know more about our availability in the coming days so I can update you then and lock in a date for imaging.
>
> We actually have a bigger coil available than the 66mm rat body coil for the 7T MRI – we have a Tx coil that is 72mm. Note that the 7T system is slightly different than the 3T system, where the coil feeds into the back of the bore (where it is locked in place) so I think it may be worth having a look at the 7T set-up and the coils available and how they would fit with your motor on a day prior to imaging.
>
> Best regards,
> Sofie
>
> Sofie Trajanovska, PhD
> Senior Technical Officer (Preclinical Imaging)

Sydney Imaging | Research Portfolio-DVC

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E sofie.trajanovska@sydney.edu.au | W http://sydney.edu.au/

From: Andre Kyme <andre.kyme@sydney.edu.au>
Date: Monday, 2 July 2018 at 4:43 pm
To: Sofie Trajanovska <sofie.trajanovska@sydney.edu.au>
Cc: "xzha2203@uni.sydney.edu.au" <xzha2203@uni.sydney.edu.au>
Subject: MRI scan with motor

Hi Sophie,

You may recall several weeks ago we discussed with you a simple experiment my student Xue Yin would like to do involving imaging a Falcon tube with and without her piezo motor running?

Well, we're now in a position to run this experiment and were wondering whether you have any time to help us this week or early next week? This week we could do any time on Tues (tomorrow) afternoon (12 pm onward) or Wed afternoon (12:30 pm onward), and next week we could do Mon (all day). Would any of those times suit you?

Here are a few details / questions about the experiment:

- I understand you have a 68 mm whole-body rat coil for the 7T system. If we used that, we'd be able to fit our motor inside the coil which would be ideal. So would it be possible to do the scans on the 7T system?
- If the 7T is not available, we can use the 3T and just place the motor right at the end of the coil.
- We plan to use a Falcon tube half filled with vegetable oil and half with water. We'll place this axially in the scanner so that a cross-sectional image will have the top half oil and the bottom half water.
- The 3 sequences we'd like to perform are:

(i) T1-weighted fast gradient echo, TE=2.3 ms, TR=225 ms, FA=75 deg
(ii) T2-weighted fast spin echo, TE=90 ms, TR=3000 ms, FA=90 deg
(iii) Fast gradient echo, TE=4.2 ms, TR=26 ms, FA=70 deg

- Note that there's some flexibility in choosing the above parameters. But if these exact settings are available we would like to use those. In each case we'd like to scan 3 slices, slice thickness ~5 mm.
- For each of the 3 sequences, we'd like to perform the following scans:

Scan 1: Sequence with phantom only
Scan 2: Repeat of Scan 1
Scan 3: Sequence with phantom + motor (off)
Scan 4: Repeat of Scan 3
Scan 5: Sequence with phantom + motor (on)
Scan 6: Repeat of Scan 5

- So there would be 18 scans altogether (3 sequences x 6 scans/sequence)

> Please let us know when it suits you to schedule the experiment, we're very happy to fit in with your timetable.
>
> Thanks!
> Andre