Re: SPAN MRI

From: **Ayata, Cenk, M.D.** | CAYATA@mgh.harvard.edu Tuesday, Mar 23, 2:14 PM

To: **Ryan Cabeen** | cabeen@gmail.com

Ryan,
Can you please:
1) calculate the average brain volume at each site
2) then average them to find the average brain volume across all sites
3) and send me the numbers?
Thanks!
Cenk

> From: **cayata@mgh.harvard.edu** To: **Aronowski, Jaroslaw** | J.Aronowski@uth.tmc.edu Tuesday, Mar 23, 5:12 PM
>
> Hi, Shuning, Jarek, thanks for testing this. This is a very big correction factor. UT brains were not really that much smaller than the rest. Can you please recheck? It would actually be very helpful to have the images as well as the composition of the water (saline, tap, distilled etc.). Some tubes are slightly conical, perhaps the physical diameter measurement was not at the same axial location as the MRI measurement? If we use this correction factor, UT mouse brains will be nearly 20% bigger than the rest.
> Sorry for the hassle and thanks!
> Cenk

From: **Ryan Cabeen** | cabeen@gmail.com Tuesday, Mar 23, 2:33 PM

To: **Ayata, Cenk, M.D.** | CAYATA@mgh.harvard.edu

Sure thing -- here you go, attached are csv table with mean/std for
each site and timepoint, and also for all sites combined

-Ryan

On Tue, Mar 23, 2021 at 2:14 PM Ayata, Cenk, M.D.

From: **Ryan Cabeen** | cabeen@gmail.com Tuesday, Mar 23, 2:39 PM

To: **Ayata, Cenk, M.D.** | CAYATA@mgh.harvard.edu

One more thought, I wonder if they are measuring the inner or outer diameter of the tube. Only the inner will be visible on MRI, assuming the tube material has no signal, right? For reference, the difference between the inner and outer of the falcon tube is 1.3 mm

Material: Tube – Polystyrene; Cap – Blue, High Density Polyethylene

Related Catalog Numbers:

Cat. No.	Packout Description	Cap	Sterile	Graduation
352027	125/Bag, 1000/Case	Screw	Yes	None

Dimensions = mm (inches)

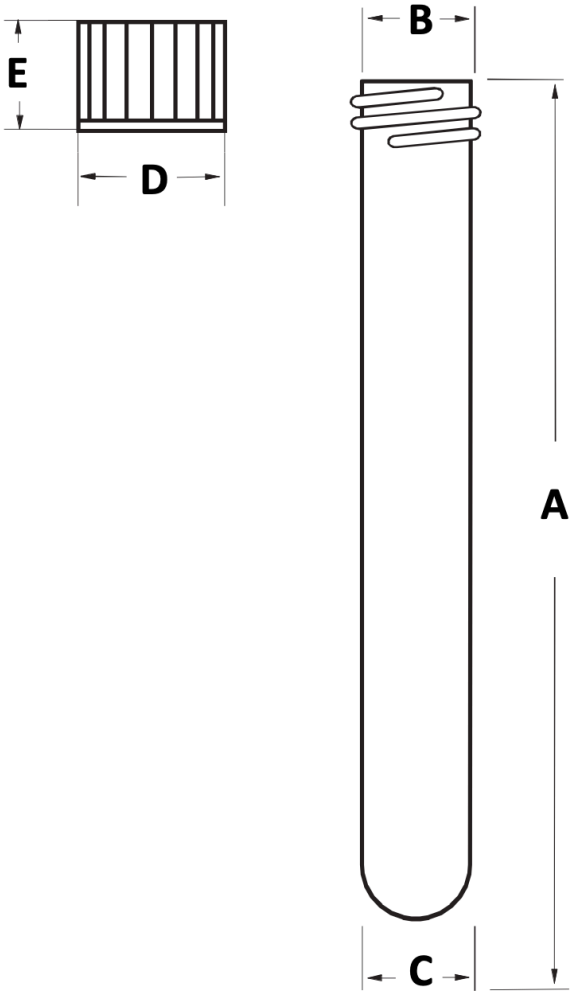
TUBE
A = 100 (3.937)
B = O.D. 13.08 (.515)
C = O.D.11.38 (.448)

Tube height w/cap = 104.67 (4.121)
Top I.D. at rim = 11.17 (.440)
Depth of rim = N/A
Top I.D. at chamfer = N/A Bottom
I. D. (Sph. Diameter) = 9.50 (.374)
Min. wall thickness = .508 (.020)
Nominal volume = 8 mL
RCF ratings = 1400 g's
Threads to fit special cap design.

Chem. Compatibility: See Chemical Resistance Chart

CAP 15 mm
D = O.D.17.83 (.707)
E = 11.30 (.445)
I.D. (bottom) = 15.29 (.602)

Threads are designed to fit Falcon® Tubes only.



From: **Ayata, Cenk, M.D.** I CAYATA@mgh.harvard.edu Tuesday, Mar 23, 2:48 PM

To: **Ryan Cabeen** I cabeen@gmail.com

Thanks, yes, that’s why I prompted them to go back to it. Something is clearly off…

does not contain patient information, please contact the sender and properly dispose of the e-mail.
Please note that this e-mail is not secure (encrypted). If you do not wish to continue communication over unencrypted e-mail, please notify the sender of this message immediately. Continuing to send or respond to e-mail after receiving this message means you understand and accept this risk and wish to continue to communicate over unencrypted e-mail.

From: **Ayata, Cenk, M.D.** I CAYATA@mgh.harvard.edu Tuesday, Mar 23, 3:23 PM

To: **Ryan Cabeen** I cabeen@gmail.com

OK, Ryan, based on these numbers I think it is *reasonable* to *assume* that the *real* total brain volume at early MRI is 380 mm3. We can simply normalize all sites to this by using a fixed scale factor. But remember, this is the volume correction. If I am not mistaken, the length correction (i.e. individual XYZ voxel dimensions) should be scaled by cube root of this volume scale factor. Let me know what you think.
Cenk

From: **Ryan Cabeen** I cabeen@gmail.com Tuesday, Mar 23, 3:59 PM

To: **Ayata, Cenk, M.D.** I CAYATA@mgh.harvard.edu

Yes, sounds right to me. The cubic root should be used if we want to correct midline shift in mm. But the relative/ratio versions might be directly comparable without correction (something to confirm)

On Tue, Mar 23, 2021 at 3:23 PM Ayata, Cenk, M.D.
