Frequently Asked Questions – GDNF DISCs™

Do I need to change the type of media I use if I am adding GDNF DISCs™?

GDNF DISCs™ can be used with the media you normally use for your neuronal cell cultures. The only change is that when using DISCs™ you don't have to add soluble GDNF to the medium. Using DISCs™ may also allow you to reduce the number of feeds. Sustained release of GDNF from DISCs™ improves neuron culture quality over the use of soluble GDNF, which has a half-life less than an hour in cultures. This means you can use a lower level of growth factor when using DISCs™ compared to soluble. You can also use BDNF and GDNF DISCs™ together as your protocol requires.

Will GDNF DISCs™ interfere with my downstream applications?

GDNF DISCs™ have been shown to have a positive impact on downstream applications. They increase MAP2A-positive axonal projections, enhance dendritic arborization, and increase Synapsin1 co-localization in MAP2A-positive cortical neurons.

How often do I need to change the DISC™?

We recommend changing GDNF DISCs™ every 10-14 days.

Do I have to change a DISC™ every time I do a medium change?

No, leave the same DISC™ in the well for about two weeks and perform medium changes without changing the DISC™. For tips and an instructional video on using and removing DISCs™, click this link: https://stemcultures.com/discs/

Are GDNF DISCs™ difficult to add or remove from my cultures?

GDNF DISCs™ can be easily added using sterile forceps and removed by using low vacuum or manual pipette.

How big are GDNF DISCs™?

Standard sized GDNF DISCs™ are approximately 2-3 mm in diameter when dry, and 5-6 mm in diameter when rehydrated.

What if I want a different concentration, can the protein release be adjusted?

The protein concentration can be adjusted based on the number of DISCs™ and the amount of medium used. Table 2 outlines how the release is affected by the number of DISCs™ and amount of medium for Standard size GDNF DISCs™ (DSCGD1).

Table 2: *Ways to adjust protein release using a standard size GDNF DISC™.*

Volume of Medium Added	Number of DISCs™ per well	Release in Volume of Medium Added	Example Plate Size
2 mL	1	5 ng/mL	6 well
1 mL	1	10 ng/mL	12 or 24 well
0.5 mL	1	20 ng/mL	24 well
2 mL	2	10 ng/mL	6 well
2 mL	3	15 ng/mL	6 well
2 mL	4	20 ng/mL	6 well

What should I do if I see increased cell debris in my cultures?

If medium is changed less often, it should be expected that cell debris will accumulate and may appear at a higher level than when medium is changed daily. Users have not reported this as being detrimental.

Can I use a DISC™ if I work with cell types prone to detaching from cell culture plates (e.g. mature neurons)?

For these types of cultures, we recommend adding the DISC™ in a Transwell®. The DISC™ will provide approximately the same sustained-release level throughout the Transwell® membrane. For example, for a culture of 1 mL, we recommend adding 750 uL of medium, then add 250 uL medium plus a DISC™ into the Transwell®. The same DISC™ plus Transwell® can be used for around 2 weeks.

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Can DISCs™ improve cultures of other cell types besides neurons?

Yes, GDNF signaling is important for a variety of cell types.

Are DISCs™ compatible with 3D organoids?

Yes, DISC™ hydrogels are inert and can be added to organoid cultures to supply growth factor for 2 weeks. This enables organoids to be grown efficiently.

Can DISCs™ release other growth factors besides GDNF?

Yes, you can view our page (https://stemcultures.com/technology/discs/) to see the DISC™ varieties available. We also customize DISCs™ to release other growth factors. Please contact us at support@stemcultures.com for custom orders.

What do I do if DISCs™ become hydrated and difficult to pick up to insert into cultures?

DISC™ hydrogels readily absorb moisture which can cause them to stick and become more difficult to handle. If DISCs™ do absorb moisture, they can be re-dried by placing the container in a cell culture hood with the lid ajar for 15-30 minutes.