Letter of Reference
SLEE Covertec Coverslipping Test

Application Specialists and Researchers,
Dept. Neurophysiology, Ruhr University Bochum

slee
solutions
for pathology

*In laboratories and research settings - the **SLEE Covertec film coverslipper** delivers outstanding results with high optical quality*

The challenge:

Does it make a difference whether the slides are covered with special plastic foil or with coverslips? How do the coverslipped slides perform during scanning? What happens to sensitive samples? And how does the **Covertec** coverslipper perform in this regard?

Our solution:

We were able to enlist the help of the Product Management - renowned neuroscientists - of the Department of Neurophysiology from Ruhr University Bochum.

They thoroughly tested the **Covertec** and evaluated the results firsthand.

Materials and methods:

The following sections were prepared for the coverslipping test in the SLEE **Covertec** coverslipper:

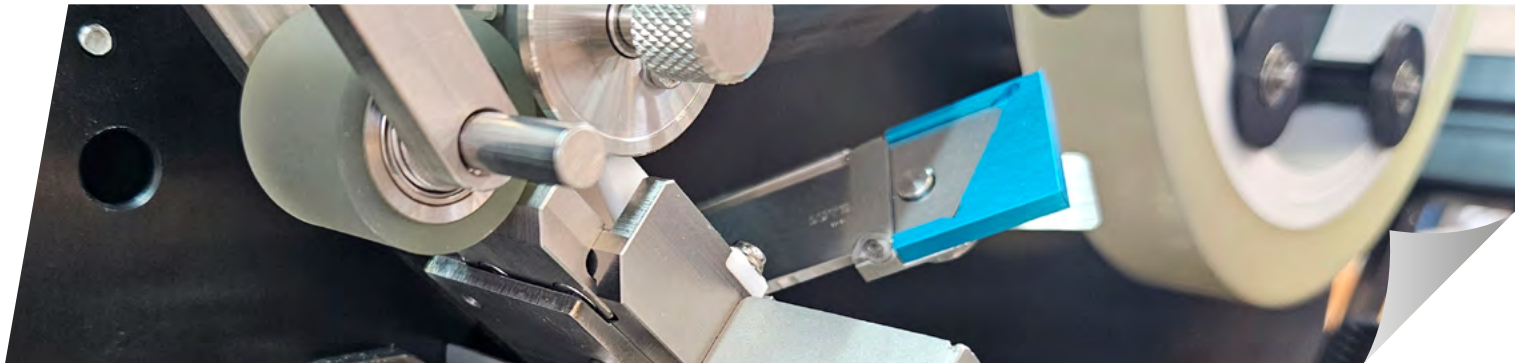
1. 30 µm PFA-fixed frozen sections, stained IHC NeuN and GFAP
2. 30 µm PFA-fixed frozen sections, stained IF for DL NeuN/GFAP and IF for GAD67/Parvalbumin
3. 5 µm FFPE-sections, HE stained, reacted immunohistochemically (IHC) with NeuN and vimentin
4. Immersion oil test

The slides were initially scanned as they had been coverslipped with coverslips, i.e., with the exception of the IF sections, all slides were dehydrated using a series of increasingly concentrated alcohol solutions, cleared in Xylene, and coverslipped with a Xylene-based mounting medium.

After air-drying, the IF sections were covered in the refrigerator using an aqueous mounting medium.

The slides were scanned using a Zeiss Axio Scan Z.1.

Afterwards, the coverslips were removed from all slides and air-dried. Before the slides were loaded into the SLEE **Covertec** coverslipper, they were pretreated in Xylene for 5 minutes to prepare them for the automatic coverslipping process. They were then scanned again. This ensured a direct comparison.



RESULT:

1. Macroscopic evaluation

The slides showed no abnormalities in terms of air bubbles, unevenness, or contamination. They appear slightly thinner than conventionally coverslipped slides. Some slides stood out because their sections extended beyond the +signs. This part was not covered.

- ➜ Sections must not extend beyond the +mark (Superfrost plus) on the slides; instead, a margin of approximately 2 mm from the lower edge of the slide should be maintained, as otherwise the sections will not be adequately covered.

2. Microscopic evaluation

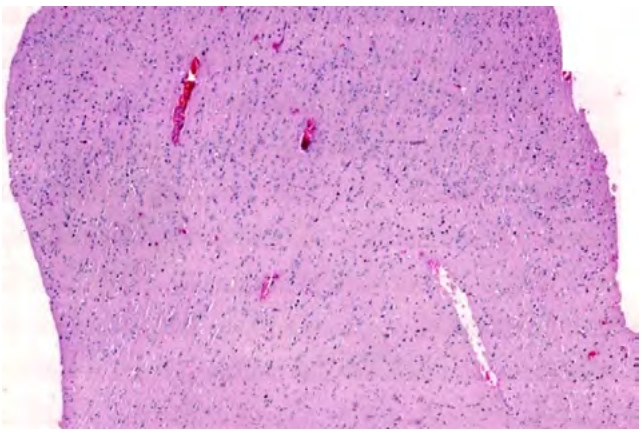
2.1 Bright field

Generally speaking, there are hardly any differences between conventional slides and those coverslipped with SLEE **Covertec** film coverslipper. The cell structure appears slightly "crisper" in the SLEE **Covertec** section.

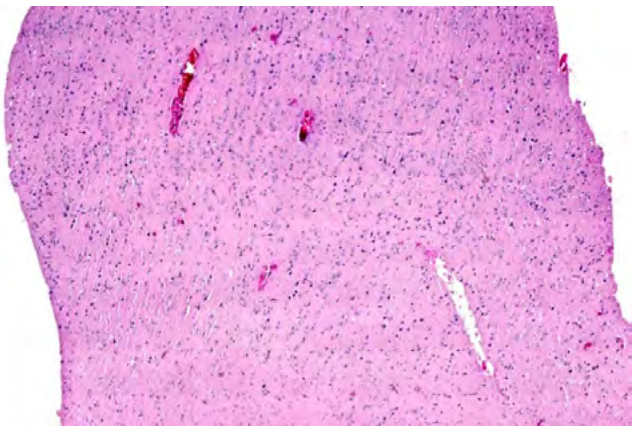
- ➜ If necessary, the slightly sharper contrast can be adjusted using a different lens (scanner) or the condenser aperture (microscope).

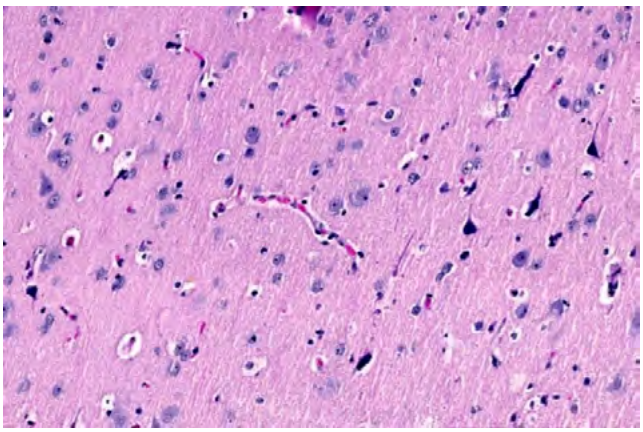
5 µm FFPE sections HE stained

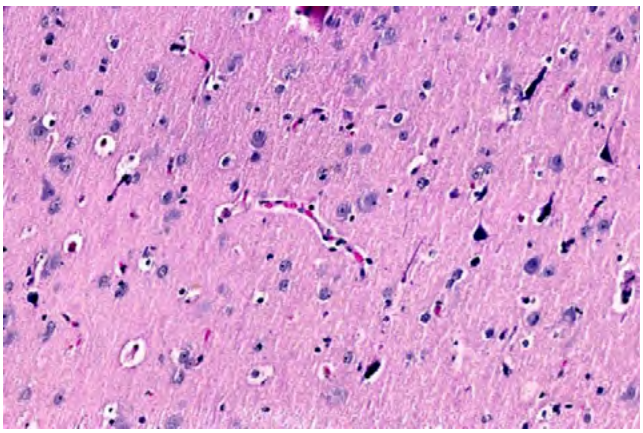
Conventionally glass coverslipped

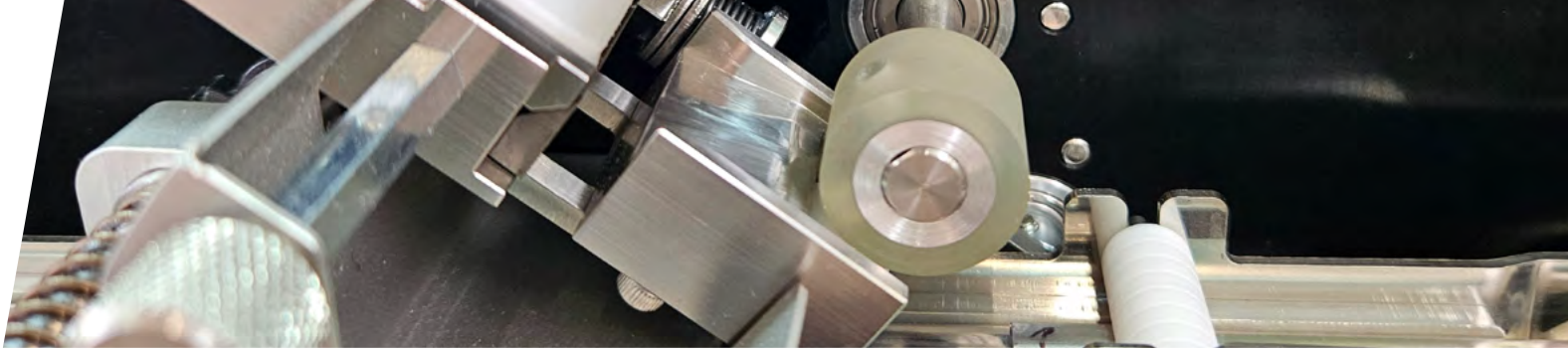


SLEE **Covertec** covered with coverfilm









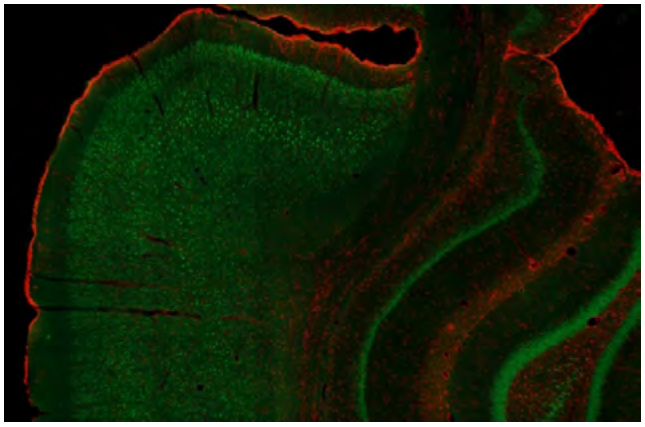
2.2 Fluorescence

In the IF sections, neither an increase in background staining (Xylene) nor a reduction in color intensity was observed after being covered with SLEE **Covertec**.

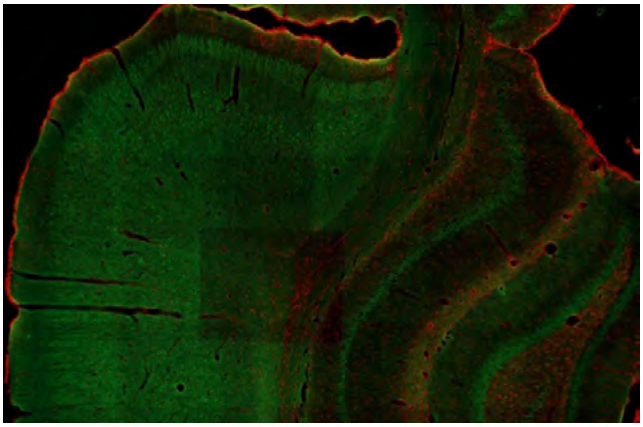
30 µm PFA-fixed frozen sections stained IF DL NeuN/GFAP and IF GAD67/Parvalbumin

NeuN/GFAP

Conventional

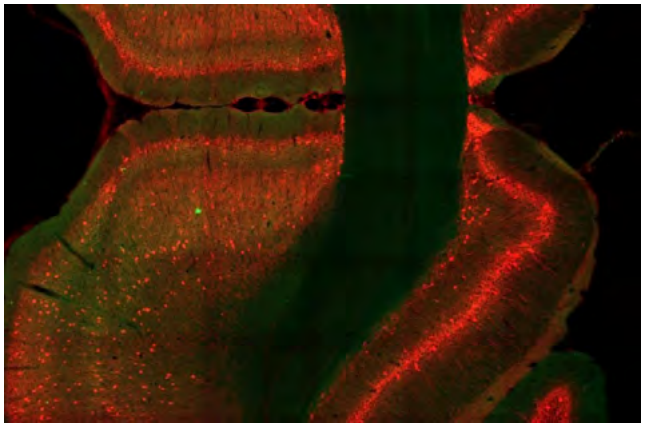


SLEE **Covertec**

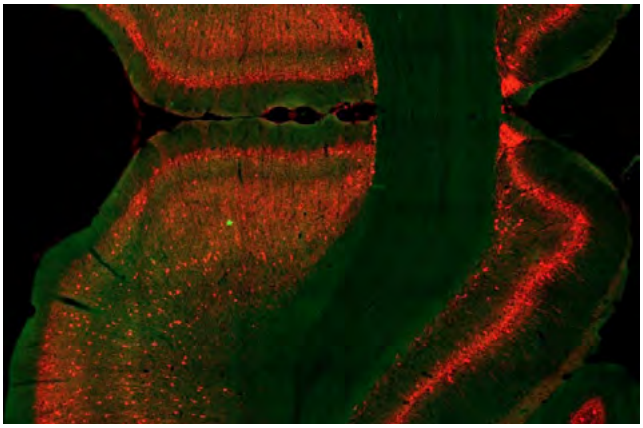


GAD67/Parvalbumin

Conventional



SLEE **Covertec**



2.3 The effect of immersion oil on the film

The test also evaluated the stability of the coverslipping film when being exposed to immersion oil. To this end, the IF slide Neun/GFAP was first imaged without immersion oil using the x20 objective of the ApoTom microscope (Zeiss), and then with immersion oil and the x63 objective. The oil was then carefully removed from the slide without leaving any traces or causing any damage.

3 Conclusion

- The SLEE **Covertec** coverslipper is suitable for FFPE material in all cases.
- It is also suitable for thick sections up to 30 µm.
- If necessary, slides prepared using the SLEE **Covertec** coverslipper can also be examined using immersion oil. The oil can be removed from the slide without leaving any traces or causing damage.

Statement Project Management, Dept. of Neurophysiology, Ruhr University Bochum:

"We've long been curious about whether scientific samples can be covered using a coverslipping film, and what the scanned results of the covered samples look like.
Coverslipping samples with film on the SLEE **Covertec** simplifies the workflow and is significantly more reliable than using a conventional glass coverslipper. The film covers the sample very quickly and delivers excellent results. We are extremely satisfied and will definitely be working with SLEE on future projects."

Ruhr-Universität Bochum, Abt. Neurophysiologie
Universitätsstraße 150 • 44801 Bochum • Germany
www.ruhr-uni-bochum.de
The Neurophysiology Laboratory investigates the underlying mechanisms of declarative memory in the mammalian brain. A key focus of this research is synaptic plasticity.

SLEE medical GmbH • Am Neuberg 14
55268 Nieder-Olm • Germany
www.slee.de
T: +49 (0) 6136 76997-0
E: mail@slee.de