



Rapid Downward Blotting of DNA and RNA FAST & Convenient

The TurboBlotter system provides a procedure for fast and efficient blotting of both DNA and RNA. This system offers greater speed, resolution and convenience when compared to traditional capillary blotting or vacuum blotting procedures. It can be used for both alkaline transfer of DNA and RNA onto Nytran® nylon membranes and for neutral nucleic acid transfers for example onto Optitran® BA-S reinforced nitrocellulose.

The TurboBlotter system incorporates our high quality transfer membranes and gel blotting papers for a superior performance.

Rapid Downward blot

- in 1 h for Southern/Northern blots
- low molarity alkaline transfer
- neutral transfer

No extras required

- without vacuum or power-supply
- no need for heavy weights

Ready-to-blot-kit

- pre-cut membranes and paper
- saves material and time
- only 125 – 200 ml buffer

Fig. 1 Illustration of the TurboBlotter Assembly

When compared to the standard upward neutral transfer of DNA, the alkaline downward transfer results in higher signal intensity after only one hour of transfer. RNA can be transferred efficiently without hydrolyzing due to the low molarity of NaOH (8 mm) in the optimized transfer buffer (see Fig. 2).

The TurboBlotter can also be used with SSC as transfer buffer and Optitran BA-S reinforced nitrocellulose as transfer membrane. In this case quantitative transfer of nucleic acids needs 3 hours of transfer (see Fig. 3).

The TurboBlotter also demonstrates excellent transfer characteristics compared to vacuum systems. In the case of the downward system the whole range of total DNA is effectively blotted (see Fig. 4).



The transfer well size is 12x16 cm or 22x27 cm.

Blotting with the TurboBlotter

Fig. 2. Alkaline Northern blot onto Nytran

A) and B) show serial dilutions of total RNA from heat shocked barley plants which were separated in a 1% agarose gel according to standard procedures and transferred with the optimized alkaline transfer buffer to Nytran.

Membranes were hybridized in one batch with ³²P-labelled cDNA of a plastid heat shock protein and exposed to an x-ray film for identical times.



A Downward transfer using the TurboBlotter for 1 hour



B Upward transfer according to standard protocols for 20 hours

Fig. 3. Neutral Northern blot onto Optitran BA-S

A) and B) were performed as described in Fig. 2, except that transfer buffer was 20 x SSC and RNA was transferred onto Optitran BA-S reinforced nitro-cellulose.

Data of Fig. 2 and Fig. 3 by courtesy of Dietlind Stapel, Inst. f. Botanik, University of Hannover, Germany



A Downward transfer using the TurboBlotter for 3 hours

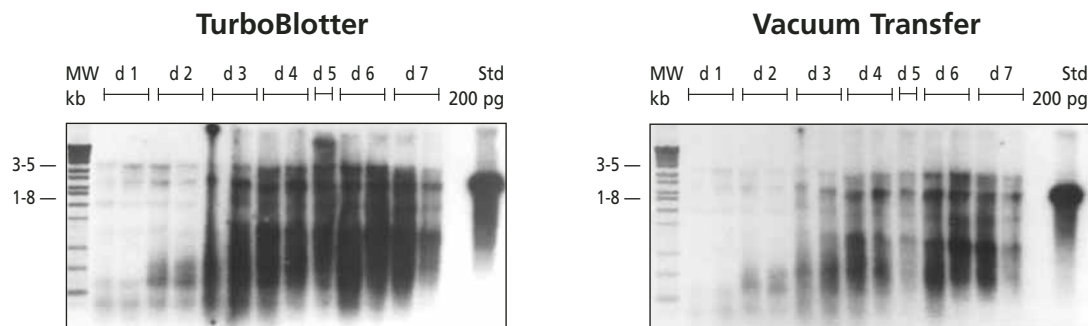


B Upward transfer according to standard protocols for 20 hours

Fig. 4. Comparison of vacuum transfer & capillary transfer using the TurboBlotter

Total duck hepatocyte DNA was isolated after infection with duck hepatitis B virus (DHBV) on the days (d) indicated. 10 µg of DNA were separated in duplicate in a 1.5% TAE agarose gel, ³⁵S-labelled 0.4-22 kb ladder (Amersham) was used as a marker and 200 pg of DHBV cDNA as a controle. The DNA was transferred with 20 x SSC onto a nylon membrane for A) 3 h in the TurboBlotter and B) 1.5 h in a vacuum. The DNA was fixed by baking at 120°C for 30 min and the membranes were hybridized to a ³²P-labelled DHBV cDNA. After washing both membranes were air-dried and exposed to x-ray film for 48 h.

Data of Fig. 4 by courtesy of Dr. Scott Bowden, MacFarlane Burnet Centre for Medical Research, Melbourne, Australia



additional technical literature:

Chomczynski, P. (1992) *Analytical Biochemistry* **201**, 134-139

One-hour Downward Alkaline Capillary Transfer for Blotting of DNA and RNA

FURTHER INFORMATION