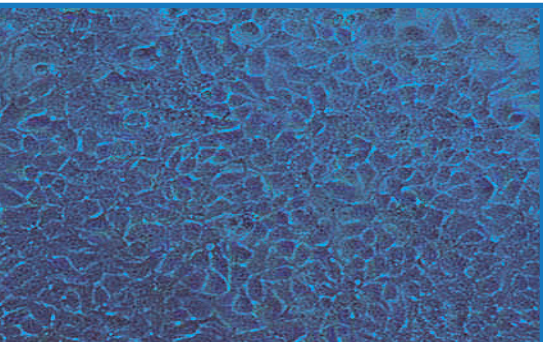**Ready**Cell
EASING YOUR SCREENING

ReadyCell introduces **PreadyTake-MATE1**

PreadyTake-MATE1 is a cell-based assay for drug transporter studies in preclinical testing. It is delivered at room temperature in a semi-solid shipping medium in a 96-well plate format with 60 full use wells. The plate contains embryonic kidney cells (*HEK293*) over-expressing the Multidrug and Toxin Extrusion 1 and/or the empty vector, according to the assay requirements.

PreadyTake-MATE1 Applications

The MATE1-expressing HEK 293 cells model the net drug uptake in those barriers where it is expressed and allows identifying:

◎ MATE1 substrates, inhibitors and inducers

◎ Compound interactions (concomitantly administered drugs)

◎ Competitive inhibition (unexpected drug elimination)
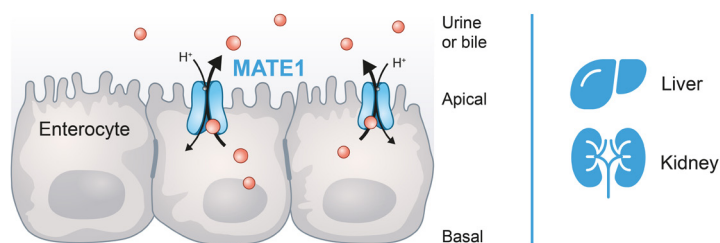
The membrane-associated MATE-1 transporter is mainly expressed in the canalicular membrane of hepatocytes, and in the apical membrane of the renal proximal tubule cells where it mediates cell internalization of endogenous and exogenous organic cations and zwitterions for renal and biliary excretion (1,2). Also at high proportion, MATE1 is expressed in skeletal muscle and at lower levels in the adrenal gland, testes and heart (2).

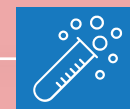## Four simple steps to use PreadyTake-MATE1

① **Recieve**
Ready-to-use Cell Barrier

② **Liquefy**
Liquefying of Solid Shipping Medium

③ **Apply**
Incubation with Test Compound

④ **Assay**
Assessment of Permeability/ Transport End Point

◎ Available on demand, adaptive to project schedule

◎ Worldwide room temperature shipments thanks to proprietary technology

◎ Ready-to-use format, reducing costs and easing the assay procedure

◎ Highest quality for a perfect replicability

◎ Adaptable to automation

◎ Specialized support from an experienced team

• Nies AT et al. Structure and function of multidrug and toxin extrusion proteins (MATEs) and their relevance to drug therapy and personalized medicine, 2016. Arch Toxicol 90:1555–1584
• Grottker J et al. Interaction of human multidrug and toxin extrusion 1 (MATE1) transporter with antineoplastic agents, 2011. Drug Metab Drug Interact 26:181–189

Experimental Data

Uptake kinetics of metformin, a reference compound of the MATE1 transporter. Assays were performed after **PreadyTake-MATE1** was exposed for 4 days to the shipping medium and a subsequent *72 h* culture in fresh medium.
These data are the result of three independent experiments.
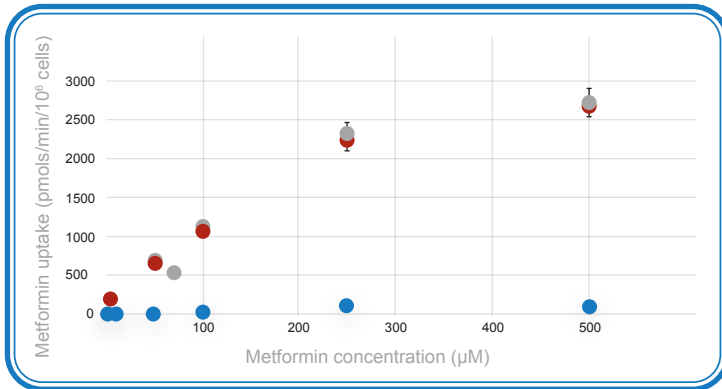
● HEK-MOCK ● HEK-MATE1 ● NET UPTAKE

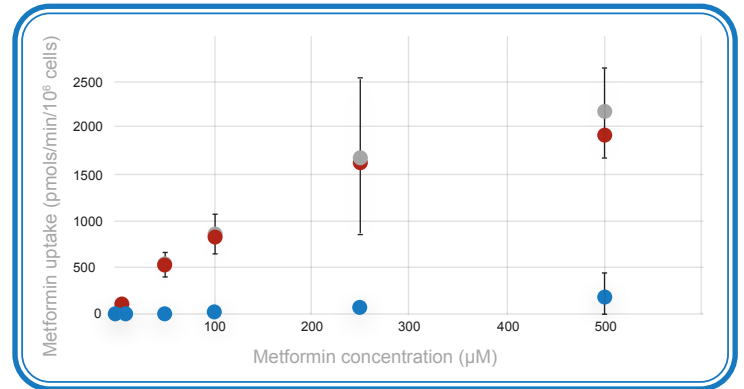**Figure 1** MATE1-mediated Metformin internalization

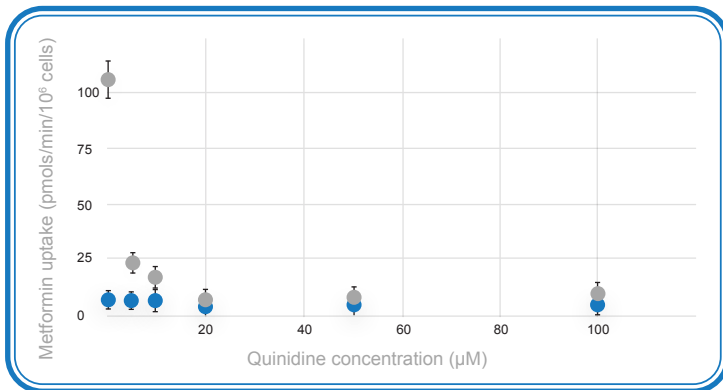**Figure 2** Metformin uptake (batch-to-batch variation).

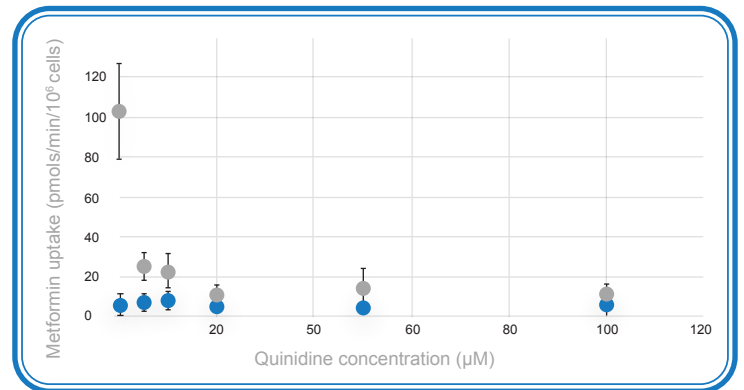**Figure 3** MATE1 inhibition by quinidine.

Figure 4 Quinidine inhibition (batch-to-batch variation).

Quality Controls

A fluorescence-based approach is used to rapidly evaluate **PreadyTake-MATE1** functionality. Assays were performed after **PreadyTake-MATE1** was exposed for 4 days to the shipping medium and a subsequent *72 h* culture in fresh medium.
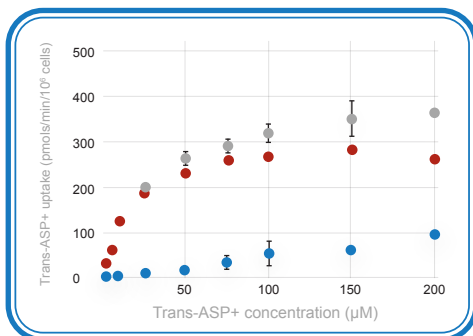
● HEK-MOCK ● HEK-MATE1 ● NET UPTAKE

Figure 5 MATE1-mediated trans-ASP+ internalization. *These data are the result of 3 independent experiments.*
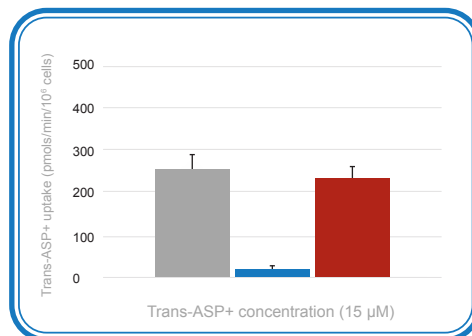

Figure 6 Trans-ASP+ uptake (batch-to-batch variation). *These data are the result of 3 independent experiments.*
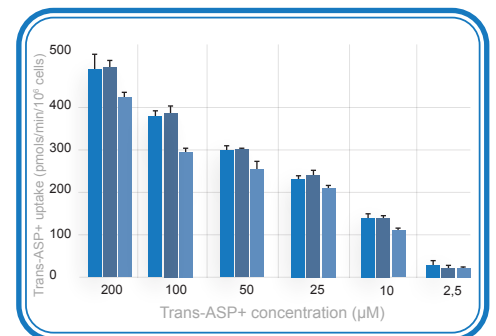

Figure 7 Effect of DMSO on MATE1 functionality ● 0,5% DMSO ● 1% DMSO ● 2% DMSO *These data refer to a single experiment in triplicates.*

MATE1 – Regulatory Requirements
Recommendations for identifying MATE1 substrates and inhibitors are outlined by the 2020 FDA Guideline and recommended for consideration according to 2012 EMA Guideline