sides of the sample holder to the bottom portions of the sample wells, while the skirting of the semi-skirted sample holder leaves lower portions of the sample wells exposed. Designing a thermal cycler system compatible with sample holders having different designs often leads to inefficiencies depending on the actual sample holder used. To perform the PCR process successfully, efficiently, and accurately, these inefficiencies should be minimized to the greatest extent possible.

**[0004]** There is an increasing need to provide improved thermal cycler systems that address one or more of the above drawbacks.

## Summary

**[0005]** In accordance with one embodiment, a thermal cycler system for use with a sample holder configured to receive a plurality of samples includes a sample block having an upstanding peripheral side wall and being configured to receive the sample holder and an adaptor having an upstanding peripheral side wall configured to be positioned about the upstanding peripheral side wall of the sample block. The upstanding peripheral sidewall of the adaptor is configured to extend in an upward direction toward the sample holder when the upstanding peripheral side wall of the adaptor is positioned about the upstanding peripheral side wall of the sample block and the sample holder is received in the sample block. The system further includes a drip pan configured to receive the adaptor. The drip pan includes one or more ejector mechanisms configured to exert force to separate the sample holder from the sample block. The adaptor includes a plurality of openings configured to allow the one or more ejector mechanisms to extend therethrough and contact the sample holder.

**[0006]** In accordance with the present disclosure, an adaptor configured to be positioned about a sample block, the sample block including an upstanding peripheral side wall and being configured to receive a sample holder, includes an upstanding peripheral side wall. When the peripheral side wall of the adaptor is positioned about the peripheral side wall of the sample block and the sample holder is received in the sample block, the peripheral side wall of the adaptor extends in an upward direction toward the sample holder.

**[0006a]** In accordance with the present disclosure, a thermal cycler system for use with a sample holder configured to receive a plurality of samples includes a sample block having an upstanding peripheral side wall and being configured to receive the sample holder and a drip pan configured to receive the sample block. The drip pan includes one or more ejector mechanisms configured to exert force to separate the sample holder from the sample block.

CLAIMS

1. A thermal cycler system for use with a sample holder configured to receive a plurality of samples, the system comprising:

a sample block having an upstanding peripheral side wall and being configured to receive the sample holder;

an adaptor having an upstanding peripheral side wall configured to be positioned about the upstanding peripheral side wall of the sample block,

wherein the upstanding peripheral sidewall of the adaptor is configured to extend in an upward direction toward the sample holder when the upstanding peripheral side wall of the adaptor is positioned about the upstanding peripheral side wall of the sample block and the sample holder is received in the sample block; and

a drip pan configured to receive the adaptor, wherein the drip pan includes one or more ejector mechanisms configured to exert force to separate the sample holder from the sample block,

wherein the adaptor includes a plurality of openings configured to allow the one or more ejector mechanisms to extend therethrough and contact the sample holder.

2. The thermal cycler system of claim 1, wherein the adaptor includes a peripheral lip, and wherein the upstanding peripheral side wall of the adaptor extends in an upward direction from the peripheral lip.

3. The thermal cycler system of claim 1, wherein the adaptor includes a deck portion including an array of apertures, and wherein the upstanding peripheral side wall of the adaptor extends in a downward direction from the deck portion.

4. The thermal cycler system of claim 3, wherein the sample holder includes an array of wells and the array of apertures of the adaptor is configured to allow the array of wells to extend therethrough when the upstanding peripheral side wall of the adaptor is positioned about the upstanding peripheral side wall of the sample block and the sample holder is received in the sample block.

5. The thermal cycler system of claim 1,

wherein the drip pan is configured to secure a lateral position of the adaptor relative to the drip pan.

6. The thermal cycler system of claim 5, wherein the drip pan includes a first mating feature and the adaptor includes a corresponding second mating feature configured to engage the first mating feature when the adaptor is received by the drip pan.

7. The thermal cycler system of claim 6, wherein the drip pan includes a projection and the adaptor includes a recess, the projection configured to engage the recess.

8. The thermal cycler system of any one of the preceding claims, wherein the sample holder includes a skirt wall, and wherein the skirt wall is configured to contact and depress into the adaptor.

9. The thermal cycler system of any one of claims 1 to 8, wherein the sample holder includes a skirt wall, and wherein the upstanding peripheral side wall of the adaptor is configured to extend in a space between the skirt wall of the sample holder and the upstanding peripheral side wall of the sample block when the upstanding peripheral side wall of the adaptor is positioned about the upstanding

peripheral side wall of the sample block and the sample holder is received in the sample block.