

Title (en)

INTEGRATED SYSTEM FOR CHEMICAL, BIOCHEMICAL, OR BIOLOGICAL REACTIONS IN A MICROPLATE SUBMITTED TO A TEMPERATURE GRADIENT

Title (de)

INTEGRIERTES SYSTEM FÜR CHEMISCHE, BIOCHEMISCHE ODER BIOLOGISCHE REAKTIONEN IN EINER MIKROPLATTE UNTER EINWIRKUNG EINES TEMPERATURGRADIENTEN

Title (fr)

SYSTÈME INTÉGRÉ POUR RÉACTIONS CHIMIQUES, BIOCHIMIQUES OU BIOLOGIQUES DANS UNE MICROPLAQUE SOUMISE À UN GRADIENT DE TEMPÉRATURE

Publication

EP 4378586 A1 20240605 (EN)

Application

EP 22210890 A 20221201

Priority

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Abstract (en)

A system for conducting one or more chemical, biochemical or biological reactions in a disposable comprising one or more wells at one or more set point reaction temperatures, comprising:- at least one disposable comprising the one or more wells in a body, wherein the wells are capable of acting as vessel for the one or more chemical, biochemical or biological reactions requiring one or more prescribed reaction temperatures according to a prescribed protocol, said body comprising a flat bottom side building a first heating surface capable of homogeneously conducting heat into the wells and a flat upper side comprising well openings, optionally sealed by means of a thin sealing foil, building a second heating surface capable of homogeneously conducting heat in the wells;- one or more gradient tempering unit GTUx, each comprising at least one tempering block comprising at least two temperable Peltier elements contacting a thermoconductive block, opposite to the Peltier elements a flat-surfaced area for positioning the at least one disposable on the thermoconductive block, said tempering block being configured to generate a set linear temperature profile in the wells of the disposable(s) when contacting the thermoconductive block;- a control unit comprising one or more processors configured to control the gradient tempering unit(s) GTUx for the implementation of the prescribed protocol for the one or more chemical, biochemical, or biological reactions;wherein the gradient tempering block with set linear temperature profile comprises at least one Peltier element temperable at a first temperature T1 and at least one Peltier element temperable at a second temperature T2, wherein T1 is higher than T2, and both Peltier elements are contacting the thermoconductive block outside of the positioning area for the disposable so that the linear temperature profile can be generated in the thermoconductive block between the two elements and conducted to the disposable while contacting the thermoconductive block. In particular, the solution can be used for cellular thermal shift assays (CETSA[®]), purified protein thermal shift assays (TSA) or any other protein denaturation or aggregation assays. The solution allows high throughput reactions or assays.

IPC 8 full level

B01L 7/00 (2006.01)

CPC (source: EP)

B01L 7/54 (2013.01)

Citation (applicant)

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- SEASHORE-LUDLOW ET AL., SLAS DISCOVERY, vol. 25, no. 2, 2020, pages 118 - 126
- SEASHORE-LUDLOW ET AL., BIOCHEMISTRY, vol. 57, 2018, pages 6715 - 6725
- SHAW ET AL., SCIENTIFIC REPORTS, vol. 8, 2018, pages 163

Citation (search report)

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- [XI] DE 8814398 U1 19890216
- [A] US 6767512 B1 20040727 - LURZ WERNER [DE], et al
- [A] WO 9401217 A1 19940120 - VERTEX PHARMA [US], et al
- [A] US 4679615 A 19870714 - LIVNE AVINOAM [IL]

Designated contracting state (EPC)

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