

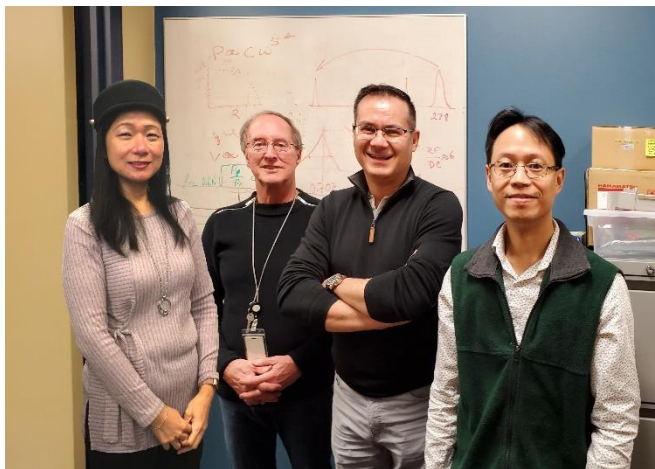
PerkinElmer 2019 Patent Winners

Names: Tak Shun Cheung, Chui Ha Cindy Wong, Hamid Badiei and William Fisher

Location: Woodbridge, Canada

Title: Inorganic and organic mass spectrometry systems and methods of using them

Description: This patent introduces a system comprising: an ionization core configured to receive a sample and provide both inorganic ions and organic ions using the received sample; and a mass analyzer fluidically coupled to the ionization core, in which the mass analyzer comprises at least one mass spectrometer core configured to select (i) ions from the inorganic ions received from the ionization core and (ii) ions from the organic ions received from the ionization core, in which the mass analyzer is configured to select the inorganic ions and the organic ions with a mass as low as three atomic mass units and up to a mass as high as two thousand atomic mass units.



Names: Hamid Badiei and Pritesh Patel

Location: Waltham, MA

Title: Systems and methods for automated optimization of a multi-mode inductively coupled plasma mass spectrometer

Description: The invention relates to automated tuning of multi-mode inductively coupled plasma mass spectrometers (ICP-MS) and an improved tuning optimization procedure. In certain embodiments, a 'single click' optimization method is provided for a multi-mode ICP-MS system that automates tuning of the system in one or more modes selected from among the multiple modes, e.g., vented cell mode (also referred to as standard operational mode "STD"), reaction cell mode (also referred to as dynamic reaction cell mode "DRC"), and collision cell mode (also referred to as kinetic energy discrimination mode "KED").



Workflows and computational routines, including a dynamic range optimization technique, are presented that provide faster, more efficient, and more accurate tuning.

Name: Ville Laitala

Location: Turku, Finland

Title: Device and a method for detecting a sample contained by a sample well

Description: The invention described is a device for detecting a sample. The device can be, for example but not necessary, a part of an optical measurement instrument. The device comprises a controller configured to: compute, on the basis of a luminescence, e.g. fluorescence, emission signal measured from the sample well, an indicator value indicative of a decay time of the measured luminescence emission signal, compare the indicator value to a reference value, and set, in accordance with the comparison between the indicator value and the reference value, a detection result to express one of the following: (i) the sample well contains the sample, (ii) the sample is absent from the sample well.



Name: Ben Perston

Location: Singapore, Singapore

Title: Identifying presence of substances

Description: The patent described introduces a method for identifying the presence of at least one adulterant substance in a physical sample in connection with a spectrometer. The method includes receiving sets of sample spectral data, reference spectral data, validation spectral data each set for a respective validation example, and adulterant substance spectral data for said at least one adulterant substance.



Name: Teemu Korpimäki

Location: Finland, Turku

Title: Device and a method for managing a sample to be analyzed and a solid sample carrier and liquid sample carrier

Description: This invention describes a device for managing a sample to be analyzed which can be, for example, an instrument for dispensing samples to sample wells or an optical measurement instrument. Furthermore, the invention is related to a solid sample carrier suitable for collecting samples of biological material to be analyzed. Additionally, the invention is related to liquid sample carrier suitable for carrying biological material to be analyzed. The device described comprises magnetizing equipment for producing magnetic field capable of interacting when the sample is moving to or located in a sample well, with magnetically amplifying material attached to the sample, the magnetically amplifying material having relative magnetic permeability constant greater than one.

Names: Joshua Kempner

Location: Waltham, MA

Title: Systems and methods for characterizing a central axis of a bone from a 3D anatomical image

Description: The patent described presents efficient and reliable systems and methods for calculating and extracting three-dimensional central axes of bones of animal subjects—for example, animal subjects scanned by in vivo or ex vivo microCT platforms—to capture both the general and localized tangential directions of the bone, along with its shape, form, curvature, and orientation.

With bone detection and segmentation algorithms, the skeletal bones of animal subjects scanned by CT or microCT scanners can be detected, segmented, and visualized. Three dimensional central axes determined using these methods provide important information about the skeletal bones.



Names: Olof John Ericsson

Location: Sollentuna, Sweden

Title: Method of estimating the amount of a methylated locus in a sample

Description: This invention presents a method to estimate the amount of a methylated locus provided in a sample. In certain embodiments the method comprises: digesting a nucleic acid sample that contains both unmethylated and methylated copies of a genomic locus with an MspJI family member to produce a population of fragments that are in the range of 20-40 nucleotides in length, ligating adaptor sequence A and adaptor sequence B to the respective ends of a target fragment of sequence X, and quantifying the amount of ligation products of formula A-X-B. A kit for performing the method is also provided.

Names: Bagna Bao and Kevin Groves

Location: Waltham, MA

Title: Carbonic anhydrase targeting agents and methods of using same

Description: The invention described provides agents that target carbonic anhydrase, which can be used as imaging agents or therapeutic agents. The agents can be used to image tumor hypoxia as well as other physiological processes in a subject.

Name: Peter Morrisroe

Location: Waltham, MA

Title: Counterflow sample introduction and devices, systems and methods using it

Description: This patent introduces devices, systems and methods using counterflow sample introduction. The system includes a torch configured to sustain an inductively coupled plasma in the torch, wherein the torch comprises a single gas inlet in an outer body of the torch, wherein the torch is configured to introduce a plasma gas through the single gas inlet in a flow that is substantially parallel to a longitudinal axis of an outer body of the torch, wherein the single gas inlet is positioned at a first end of the torch; an induction device comprising an aperture configured to receive the torch and configured to provide radio frequency energy into the torch to sustain the inductively coupled plasma in the torch; and a sample introduction device fluidically coupled to the torch and configured to provide a sample fluid flow to the torch in a direction that opposes the flow of the plasma gas in the torch that is used to sustain the inductively coupled plasma to introduce analyte in the sample fluid flow into the sustained inductively coupled plasma to ionize the introduced analyte, wherein the sample introduction device is configured to introduce the sample flow into the torch at a second end of the torch that is opposite the first end of the torch.



Name: Chady Stephan, Hamid Badiei and Serguei Savtchenko

Location: Woodbridge, Canada

Title: Spray chambers and methods of using them

Description: This invention relates to spray chambers and their use in single molecule or single cell analyses to introduce a sample into a plasma or other ionization source or ionization device.

Names: Pertti Hurskainen, Teemu Korpimaki, Heikki Kouru and Mikko Sairanen

Location: Turku, Finland

Title: System and method for determining risk of diabetes based on biochemical marker analysis

Description: The invention described is related to a method for predicting risk of gestational diabetes mellitus (GDM) in a pregnant individual and includes measuring one or more biochemical markers in a blood sample obtained from the pregnant individual to determine one or more biomarker levels, where the one or more measured biochemical markers includes at least one of PAI-2 and sTNFR1, identifying, for each of the one or more measured biochemical markers, a difference between the measured biomarker level and a corresponding predetermined control level, and, responsive to the identifying, determining a prediction corresponding to a relative risk of the pregnant individual having or developing GDM.

Names: Masoud Toloue

Location: Austin, Texas

Title: Methods and compositions for improving removal of ribosomal RNA from biological samples

Description:

This patent relates to compositions for maximizing capture of affinity-labeled molecules on solid supports.

Specifically, this invention presents a method for removing rRNA from an rRNA-containing sample

includes: obtaining an RNA sample from a biological

source, said RNA sample containing rRNA; mixing said RNA sample with one or more RNA subtractive hybridization probe(s) which is/are complementary to one or more rRNA

molecules in the RNA sample, wherein the RNA subtractive hybridization probe(s)

comprise an affinity label; incubating the RNA sample/RNA subtractive hybridization



probe mixture under conditions effective to allow hybridization of the probe(s) with the rRNA in the sample RNA; incubating the hybridized probe rRNA mixture under conditions effective to associate the affinity label in the hybridized probe/rRNA complex with a solid support by linking it to an affinity label recognition molecule attached to the solid support, wherein incubating the hybridized probe rRNA mixture is carried out in the presence of a reaction composition containing components that facilitate association of the hybridized probe/rRNA with the solid support; removing the hybridized probe/sample RNA/solid support complex; and recovering the remaining RNA in the sample.

Name: Timothy Neal

Location: Waltham, MA

Title: Gas chromatograph column connection device

Description: This invention refers to connection devices in the field of gas chromatography. More specifically, the application pertains to an apparatus for connecting a column to a receiving portion in a gas chromatography instrument. It is an object of the present application to provide a column connection device for use in gas chromatography capable of maintaining a fluid-tight seal in the face of extreme temperatures that also provides for easy, consistent and accurate adjustment to column depth, thereby overcoming the disadvantages of the current applications available in the art. It is a further object of the application to provide an easy to use connection device without extraneous parts that could be lost or damaged.



Names: Jurgen Oster, Thomas Sommer, Lothar Brassard

Location: Baesweiler, Germany

Title: Spherical, magnetizable polyvinyl alcohol microparticles, methods for their production, and their use

Description: This patent pertains to methods and use for spherical, magnetizable polyvinyl alcohol microparticles, especially for diagnostic purposes. The method enables the production of microparticles having a particle size distribution in the range of 0.5 to 3 μm , and includes the following steps, dispersing a nanoparticulate, magnetizable material in an aqueous phase which contains polyvinyl alcohol in dissolved form, adding the aqueous phase to an organic phase, immiscible with said aqueous phase and containing at least one emulsifier, producing an emulsion by stirring at a temperature of 25° C. or higher, and adding at least one water-soluble crosslinking agent while stirring is continued.

Names: Michael Belobraydich, Richard Harazin

Location: Waltham, MA

Title: Systems and methods for radiation detection with improved event type discrimination

Description: This invention presents radiation detection systems and methods that provide for improved discrimination between different types of radioactive events. The use of multiple discriminator settings based on pulse curve shape, rather than a single setting, is surprisingly found to improve discrimination between alpha and beta events. Results demonstrate significantly lowered % spill with minimal loss of efficiency due to the enhanced discrimination. These systems and methods are particularly important in the detection of extremely low-level alpha and beta events, and in the identification and quantification of isotopes with difficult-to-distinguish pulse shapes. Furthermore, the systems and methods presented allow a user to adjust the multiple discriminator settings, e.g., via an interactive histogram display, permitting self-selection of the trade-off between discrimination accuracy and efficiency. In other embodiments, the systems and methods automatically determine the multiple discriminator settings based on a figure of merit that minimizes misclassification error and maximizes efficiency.



Names: Olof John Ericsson

Location: Sollentuna, Sweden

Title: Nucleic acid probe and method of detecting genomic fragments

Description: This patent provides improved methods and probes for analyzing nucleic acid fragments, such as fragmented genomic DNA. Some embodiments of the invention relate to probes and their use in methods of testing samples for the presence of a target single stranded nucleic acid fragments.

Names: Fredrik Persson

Location: Sollentuna, Sweden

Title: Use of a porous capillary membrane for determining the amount of rolling circle amplification products

Description: This invention presents a method of sample analysis which, in certain embodiments, may comprise (a) filtering a liquid sample containing rolling circle amplification (RCA) products using a porous capillary membrane, thereby producing an array of the RCA products on the membrane; wherein the sample contains at least a first population of RCA products and a second population of RCA products, wherein the first and second populations of labeled RCA products are distinguishably labeled; and (b) determining the amount of the first labeled population of RCA products and the amount of the second labeled population of RCA products in an area of the membrane.



Names: Lars Komorowski, Madeline Scharf, Ramona Miske, Yvonne Denno, Ina-Madeleine Dettmann, Christian Probst, Stefanie Hahn and Stephanie Kade

Location: Luebeck, Germany

Title: Diagnosis of a neuroautoimmune disease comprising measuring autoantibodies to flotillin1 and/or flotillin2

Description: This patent introduces a method for diagnosing a disease by detecting an autoantibody that binds to flotillin1 and/or flotillin2 in a sample, a polypeptide comprising flotillin1 and/or flotillin2 or a variant thereof, which may be immobilized, a method of treating a disease by applying to a subject the polypeptide that binds to an autoantibody, an autoantibody binding to flotillin1 and/or flotillin2, a method for isolating the autoantibody, a pharmaceutical composition, a medical device and test kit comprising the polypeptide, are provided. A method for detecting the presence of an autoantibody is also provided.

Names: Ramona Miske, Madeleine Scharf, Lars Komorowski, Yvonne Denno, Christian Probst, Inga-Madeleine Dettmann and Bianca Teegen

Location: Luebeck, Germany

Title: Detection of anti-neurochondrin autoantibody in patients with cerebellar ataxia or cerebellitis

Description: The invention presents methods for diagnosing or treating diseases associated with neurological symptoms or cancers are also provided. The methods of diagnosis may include detecting an autoantibody binding to Neurochondrin in a sample from a patient. The methods of treatment may include administering a polypeptide comprising Neurochondrin to a patient.

Name: Norbert Rottmann

Location: Luebeck, Germany

Title: Transparent microscope slide having a marking

Description: This patent describes a transparent object carrier, which has a marking impressed in the interior, to a diagnostic instrument, preferably a microscope, in combination with a transparent object carrier inserted for diagnostic analysis, and to a method, comprising the steps of providing a transparent object carrier, impressing a marking, which is located in the interior of the carrier, supplying the transparent object carrier with a biological or chemical sample, and, optionally, dividing the transparent object carrier and thereby producing a plurality of smaller transparent object carriers that enclose material from the biological or chemical sample.

Names: Alexander Kowtun, Bianca Huth, Lars Koschinat and Lars Richter

Location: Luebeck, Germany

Title: Method and device for transferring liquids

Description: This invention relates to a pressure-tight storage vessel containing a liquid, wherein the storage vessel has an inner base and an upper side and is closed in a pressure-sealing manner by a closure, and wherein the nature of the storage vessel allows the pressure-sealing plunging of at least two hollow needles; to a method for transferring a liquid from a storage vessel to a reaction vessel, comprising the steps of providing the storage vessel according to the invention, pressure-sealing plunging of a first hollow needle which is connected to a flushing-liquid reservoir, pressure-sealing plunging of a second hollow needle which is connected to the reaction vessel, introducing flushing liquid from the flushing-liquid reservoir into the storage vessel via the first hollow needle with

outward driving of the liquid from the storage vessel into the reaction vessel via the second hollow needle, and to a device suitable for carrying out said method.
