

Title (en)
METHOD OF COUNTING NANOPARTICLE TAGS IN SOLID SAMPLES

Title (de)
METHODE ZUR ZÄHLUNG VON NANOPARTIKEL-MARKIERUNGEN IN FESTEN PROBEN

Title (fr)
PROCÉDÉ PERMETTANT DE COMPTER DES ÉTIQUETTES DE NANOPARTICULES DANS DES ÉCHANTILLONS SOLIDES

Publication
EP 4297063 A1 20231227 (EN)

Application
EP 22179809 A 20220620

Priority
EP 22179809 A 20220620

Abstract (en)
The invention provides a method of counting inorganic nanoparticle tags in a sample, using laser ablation inductively coupled plasma mass spectrometry (LA ICP MS), comprising the steps of: a) providing a sample containing inorganic nanoparticle tags, said sample having at least one absorbing component capable of absorbing the energy of a laser at least one predetermined wavelength, b) irradiating a spot in the sample by a laser emitting at the at least one predetermined wavelength, thereby exciting and ablating the absorbing component on the illuminated spot, thereby causing desorption of the inorganic nanoparticle tag(s) which are present in the irradiated spot without disintegrating the inorganic nanoparticle tag(s), c) transferring the desorbed inorganic nanoparticle tag(s) into an ICP torch, subjecting it to inductively coupled plasma mass spectrometry, and detecting spike(s) of the individual inorganic nanoparticle tag(s); d) optionally repeating steps b) and c).

IPC 8 full level
H01J 49/10 (2006.01); **H01J 49/04** (2006.01)

CPC (source: EP)
H01J 49/0463 (2013.01); **H01J 49/105** (2013.01)

Citation (applicant)
• WO 2016090356 A1 20160609 - FLUIDIGM CANADA INC [CA]
• DRESCHER, D.GIESEN, C.TRAUB, H.PANNE, U.KNEIPP, J.JAKUBOWSKI, N., ANALYTICAL CHEMISTRY, vol. 84, no. 22, 2012, pages 9684 - 9688
• GIESEN, C.WANG, H. A. O.SCHAPIRO, D.ZIVANOVIC, N.JACOBS, A.HATTENDORF, B.SCHUFFLER, P. J.GROLIMUND, D.BUHMANN, J. M.BRANDT, S., NATURE METHODS, vol. 11, no. 4, 2014, pages 417
• PICHAANDI, J.ZHAO, G. Y.BOUZEKRI, A.LU, E.ORNATSKY, O.BARANOV, V.NITZ, M.WINNIK, M. A., CHEMICAL SCIENCE, vol. 10, no. 10, 2019, pages 2965 - 2974
• GUNDLACH-GRAHAM, A.GUNTHER, D., ANALYTICAL AND BIOANALYTICAL CHEMISTRY, vol. 408, no. 11, 2016, pages 2687 - 2695
• VAN MALDEREN, S. J. M.VAN ACKER, T.VANHAECKE, F., ANALYTICAL CHEMISTRY, vol. 92, no. 8, 2020, pages 5756 - 5764
• LABORDA, F.Bolea, E.JIMENEZ-LAMANA, J., ANALYTICAL CHEMISTRY, vol. 86, no. 5, 2014, pages 2270 - 2278
• YAMASHITA, S.YOSHIKUNI, Y.OBAYASHI, H.SUZUKI, T.GREEN, D.HIRATA, T., ANALYTICAL CHEMISTRY, vol. 91, no. 9, 2019, pages 6200 - 6205

Citation (search report)
• [IY] WO 2014079802 A2 20140530 - VENTANA MED SYST INC [US], et al
• [Y] US 2003096426 A1 20030522 - LITTLE DANIEL P [US], et al
• [Y] US 2003193020 A1 20031016 - VAN BERKEL GARY J [US]
• [A] US 2014283628 A1 20140925 - HATTINGH RUAN [GB], et al
• [A] STIJN J. M. VAN MALDEREN ET AL: "Recent developments in the design of rapid response cells for laser ablation-inductively coupled plasma-mass spectrometry and their impact on bioimaging applications", JOURNAL OF ANALYTICAL ATOMIC SPECTROMETRY, vol. 31, no. 2, 1 January 2016 (2016-01-01), pages 423 - 439, XP055306349, ISSN: 0267-9477, DOI: 10.1039/C5JA00430F

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4297063 A1 20231227; WO 2023246960 A1 20231228

DOCDB simple family (application)
EP 22179809 A 20220620; CZ 2023050031 W 20230609