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We Know Technology, We Know Patents



INTRODUCTION

Scope of the report

- SAMPLE
- This report provides a detailed picture of the patent landscape for Circulating Tumor Cells isolation and detection.
- This report covers patents published worldwide up to October 2019.
- We have selected and analyzed about **1,680 patent families** relevant to the scope of this report.

Included in the report

- ✓ Circulating cells names: tumoral, disseminated (if they are in the blood), rare, epithelial or stem cancer cells
- ✓ All type and stage of cancers
- ✓ Trials could be on humans, animals or cell lines
- ✓ Techniques: isolation, detection / identification
- ✓ CTC could be use as diagnosis, prognostic and to determine treatment efficacy

Not included in the report

- X Free circulating DNA/RNA, exosome or vesicules
- X Circulating endothelial cells or fetal cells
- X Tissue samples (primary tumor or metastasis)
- X Liquid biopsy as urine, lymph node, pleural secretion and others
- X Technique: CTC cultivation
- X Treatment or destruction of CTC



INTRODUCTION

Key features of the report

- Essential patent data for CTC isolation and detection.
- In-depth patent analyses of key technologies and key players including:
 - Time evolution of patent publications and countries of patent filings;
 - Current legal status of patents;
 - Ranking of main patent applicants;
 - Joint developments and IP collaboration network of main patent applicants;
 - Key patents;
 - Relative strength of main companies IP portfolio; and
 - Matrix patent applicants/technology issues for main IP players.







INTRODUCTION

Key features of the report

- Excel database comprising all analyzed patents of the report is provided.
- This patent database allows multi-criteria searches, including:
 - Patent publication number
 - Hyperlinks to the original documents
 - Priority date
 - Title
 - Abstract
 - Patent assignees
 - Technical segmentation





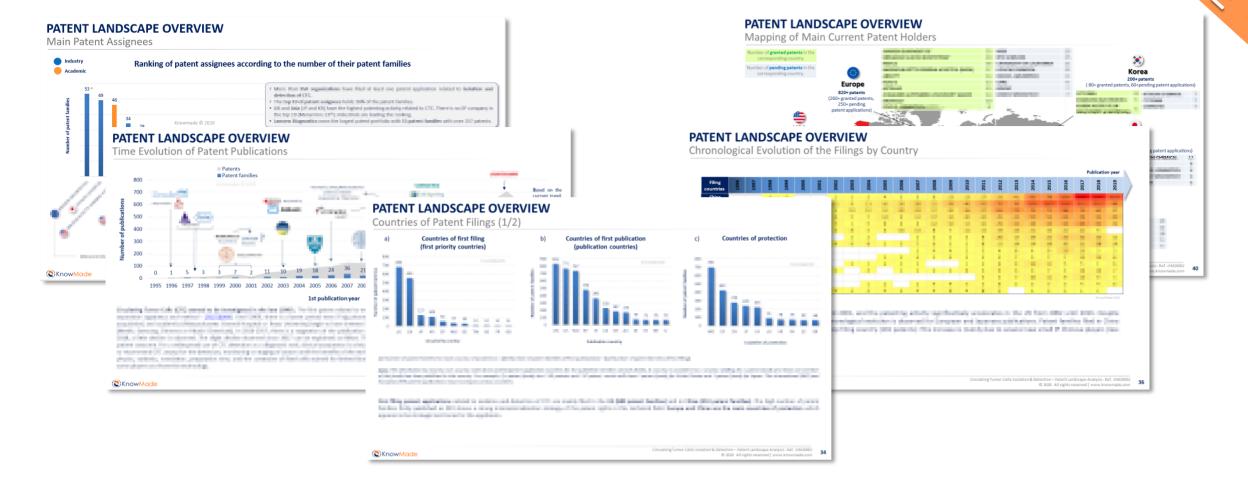
• The findings, interpretations and conclusions expressed in this report are entirely those of Knowmade and may not constitute or imply endorsement by a decision-making body such as a court of law or a patent office. Any assessment of the effect or scope of pending applications or granted patents reflects our own views and these are not necessarily those of a Patent Attorney. Should confirmation of our assessment in this respect be required, we recommend that you seek the advice of a national Patent Attorney.



Patent Landscape Overview

Patent assignees, IP dynamics, patent legal status, patent geographical coverage



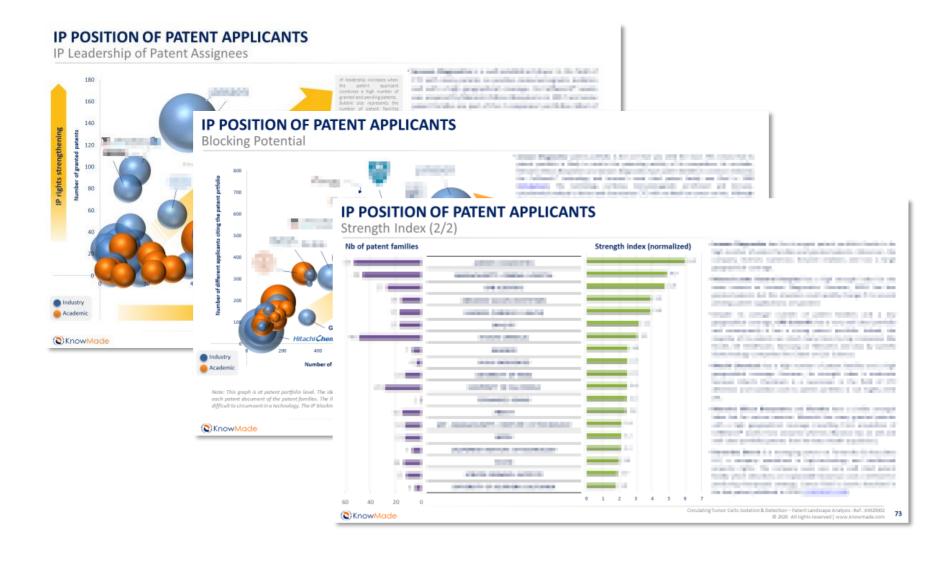




Patent Portfolios Benchmarking: Beyond the Quantity

Who has the best patent portfolio?



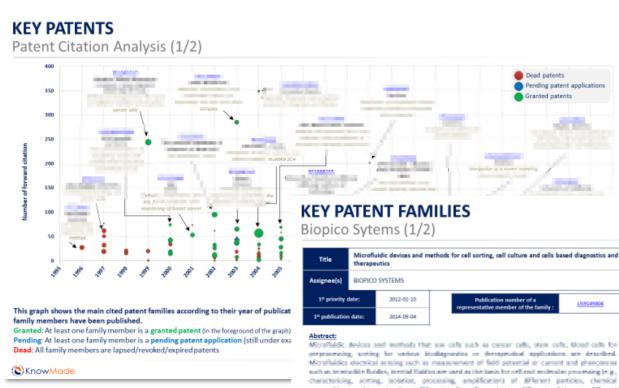




Key patent families

Identification of the patent families with the higher impact





BIOPICO SYSTEMS INC

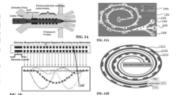
Family involved in a US Patent Infringement case?

Microfishide devices and methods that use calls such as cancer calls, stem calls, blood calls for preprietable, sorting for serious hindespreading or the securities' explications are described. Micrafishidics electrical sensing such as measurement of field patential or current and phenomena early as impriscible flatities, in exital flatities are used as the lasts for cell and embradar processing in g., characterizing, sorting, isolation, processing, amplification) of different particles, characterized composition or biogenies (e.g., different cells, cells containing different substances, different particles, different bischemical compositions, proteins, engines etc.). Specifically this invention aliabates a few sarring subsectes for sizes wells, whole blood and sixulating factor relix and also extracting serum from whole blood. Further medical diagnostics technology utilizing high throughput single sell PCE is described using involutible fluidox couple with single or realit sells trapping technology.

Key figures:

Fig. 5 (4) Schematic configuration of the stem cell sortine fluids and electrodes array systems (I) Representation of electrode array for repodence sensing, attribute current and discrete recording of time domain streaks responer using 20 electrodes in the costs of flow cells.

Fig. 52, 4G CTC evendment using decreasing width gradient pertudic precling regions in spiral channel inestal fluidicuiti) Modified Fluidey chipita holiste CFC of ever baying store variety multiples on ting of blood.



Claims (US9149806):

3. A method for high throughput cell sorting based on on-the-file flow based field potential sensing, the method comprising:

stimulating a cell; sensing field potential signals of the cell as the cell flows through an array. of spatially laceted electrodes after the cell being attenuisted, identifying a cellular phenotype of the cell based on the field potential signals sensed from the array of spetially. located electrodes; sorting the self-based on the cellular phenatype.

5. A method of size or density based sorting blood cells for the separation of different components of blood calls such as 85G leukscotes, lymphrostes, T cells, monocytes, dendritic cells, other sare cells and cancer cells including circulating tumor cells using yoked. multiplinal channel with plurality of loops working at inertial microfishtics which consists of: a. A limit channel where the ununted whole blood or pre-precioused multiple cellular components blood or other calls in reagent is introduced; b. Two or more policis where different components of the cells are callected from different upital channels connected to each other by side channels called "soked" channels; r. Expansion channels or regions in the spiral channels where employ size or leasor density cells are sidelised for transferring to adjacent spiral channels; d. One or more spiral channels with parameterized expension regions where cells of multiple sizes or densities underso inertial fluidic surface in to the adjacent channel if any; a. Width gradient of the spiral channel from the inlet to noticts for efficient sorting of cells with belanced fluidic pressure; E. Aspect ratio of the channel width and depth ranging from 8.5 to 5 or more at varying flow rates under inertial fluid dynamics. regime so that the sorting from the main spiral channel to adjacent spiral channel is enabled. by lift force and Dean drug force.

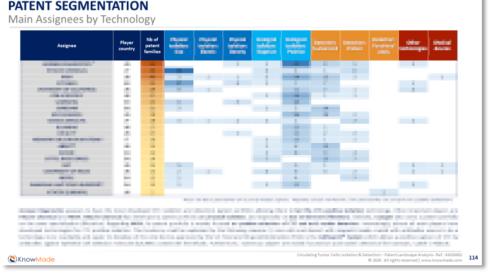
KnowMade

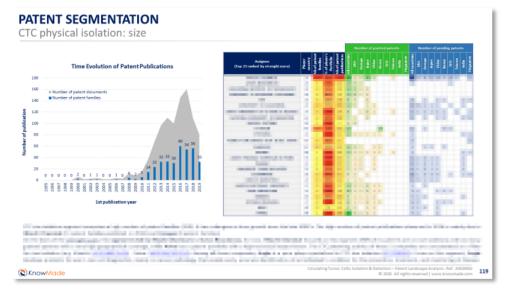
Circulating Tumor Cells: Isolation & Detection - Patent Landscape Analysis - Ref. :KM20002 © 2020 All rights reserved | www.knowmade.com



Patent Segmentation

What are the key IP players for each segments?



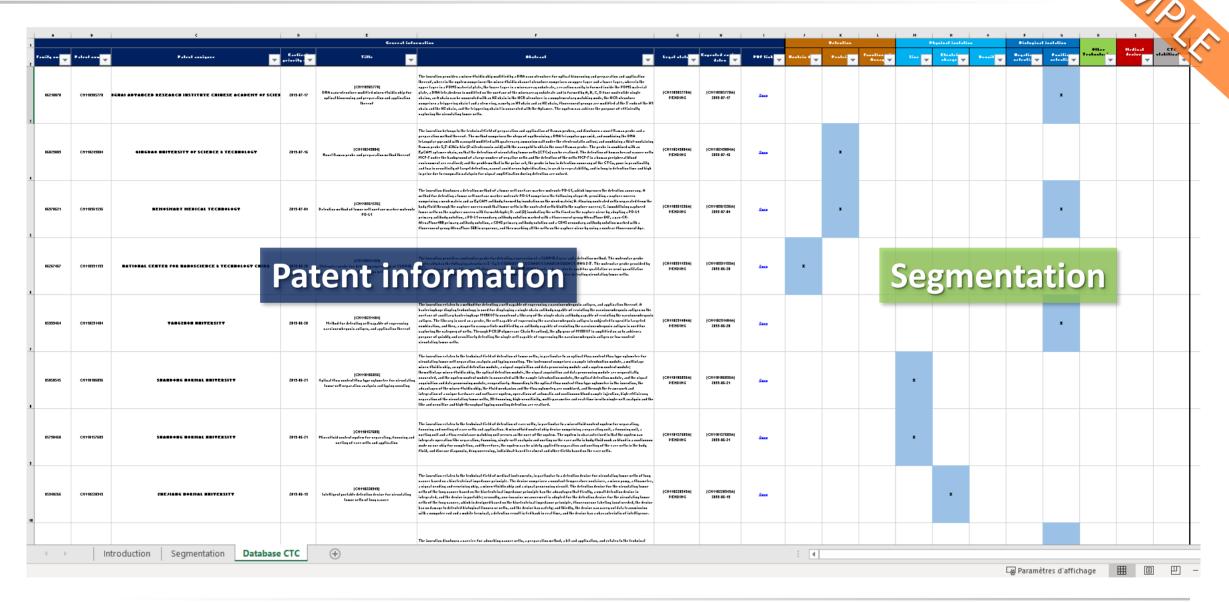






Excel file with all patents analyzed in the report

Useful patent database allows multi-criteria searches





ORDER FORM

Circulating Tumor Cells: Isolation & Detection

Patent Landscape Analysis – February 2020

Ref.:KM20002

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KNOWNADE Company presentation



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Executive team



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Dr. Brice SagotCTO and co-founder of Knowmade.

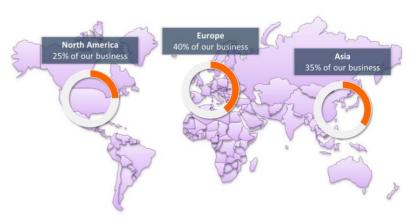
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Analyst team

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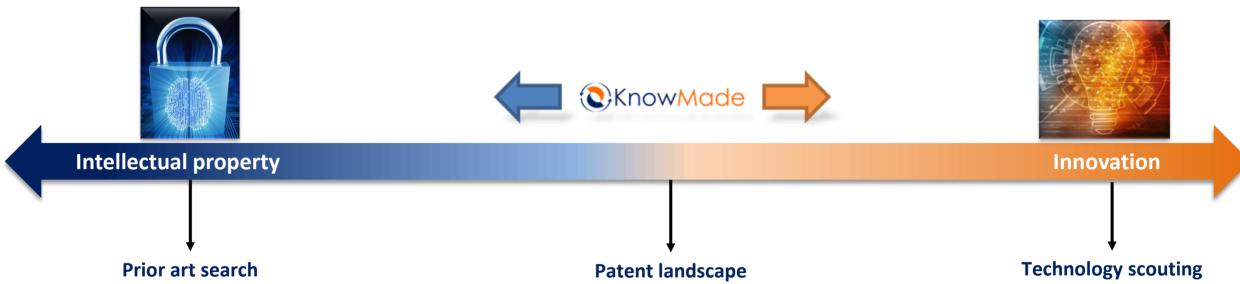


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- > RF filters & Amplifiers
- > Front end modules
- Antenna

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- Microfluidic
- Medical diagnostic
- Biotech & Pharmaceutics
- Agrifood



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- ➤ MEMS transducers and sensors
- Optical sources & display

Power

- > Emerging materials
- Compound semiconductor
- Battery & power managements
- Power electronics







