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(57) **Abstract:** A continuous Glomerular Filtration Rate (GFR) estimation system may include a Foley catheter, a continuous urine creatinine sensor, and a urine output monitor. The continuous GFR estimation system computes creatinine clearance as $CrCl = (U_{cr} \times U_{vo,i}) / (P_{cr} \times I_{m,i})$, where U_{cr} is urine creatinine in mg/dL, $U_{vo,i}$ is urine volume in mL, P_{cr} is plasma (serum) creatinine in mL, and $I_{m,i}$ is time in minutes. A Foley catheter may be used to withdraw urine from the bladder. The urine may be delivered to a urine output monitor that provides the $U_{vo,i}$ value over a time $I_{m,i}$. Attached to the catheter is the flow-through continuous urine creatinine sensor for providing the U_{cr} value. The remaining parameter is P_{cr} . Because serum creatinine levels do not change rapidly over time, a blood sample may be withdrawn prior to the start of the continuous GFR to obtain the P_{cr} value.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US08/54207

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **G01N 33/48**(2006.01);A61B **5/00**(2006.01)

USPC: 702/19,20; 128/634

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/19,20; 128/634

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MEDLINE, BIOSIS, BIOTECHDS, CAPLUS, EMBASE, USPAT, US-PGPUB, EPO, JPO, DERWENT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ERLENKOTTER et al. Biosensors and Flow-through System for the Determination of Creatinine in Hemodialysate. Analytical and Bioanalytical Chemistry, 2002, Vol. 372, pages 284-292, entire document.	1-20
A	STEFAN- VAN STADEN et al. Simultaneous Detection of Creatine and Creatinine Using a Sequential Injection Analysis/Biosensor System. Preprative Biochemistry and Biotechnology, 2006, Vol. 36, pages 287-296, but only the Abstract is provided.	1-20
A	ROWE et al. An Evaluation of Blood Creatinine Measurement by Creatinase on the NOVA M 7 Blood Gas Analyzer. Clinica Chimica Acta, 2001, Vol. 307, pages 23-25, entire document.	1-20
A	U S 6379969 B1 (MAUZE et al.) 30 April 2002 (30.04.2002), entire document.	1-20



Further documents are listed in the continuation of Box C.



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* Special categories of cited documents	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search

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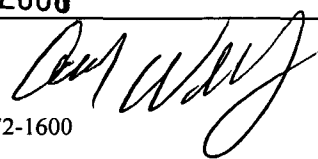
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5704353 A (KALB et al.) 06 January 1998 (06.01 .1998), entire document.	1-20