Mail Stop: Assignment Recordation Services Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	RECORDATION FO PATENT	S ONLY	Pate	ZENT OF COMMERCE out and Trademark Office
			orney Docket No.	132282
Please record the attached documer Total number of pages including co		ment: <u>3</u>		
1. A. Name of conveying party (1) Daisuke SHIBATA (2) Hiroshi SAWADA (3) Satoru MAEDA B. Additional name(s) of contact the second sec	A.	TOYOT 1, TOYO AICHI-F KABUS JIDOSH 2-1, TOY	OTA-CHO, TOY CEN, 471-8571 J HIKI KAISHA J OKKI YODA-CHO, KA	ABUSHIKI KAISHA TOTA-SHI IAPAN TOYOTA ARIYA-SHI
3. A. Nature of conveyance;			EN, 448-8671 <i>J.</i> name(s) & address(□Yes	
Assignment	☐ Merger			•
Security Agreement	☐ Change of Name			
Other				
B. Execution Date: (1-2) Ju	ne 4, 2007 (3) June <u>6, 2007</u>			
4. A. Patent Application No.(s)	11/790.028	B. Patent No.(s	<u>.</u>	
	Additional numbers attac	hed? 🔲 Yes 🔯 No		
C. Title of Application: <u>FA</u>	LILURE DIAGNOSIS MET	HOD FOR REDUCE	NG AGENT AD	<u>DITION VALVE</u>
 Name and address of party to whe concerning document should be a 	nom correspondence mailed:	6. Total number of a	pplications and pat	ents involved: 1
Name: <u>James A. Oliff</u>		7. Please charge total fee (37 (e Deposit Accou CFR 3.41) in the a	nt No. 15-0461 the amount of \$40.00.
Address: OLIFF & BERRIDG P.O. Box 1992 Alexandria, VA Phone Number: 703 Fax Number: 703-	28 22320 -836-6400	Credit any overpa deposit account m	yment or charge any umber 15-0461,	y underpayment to
Statement and signature. To the best of my knowledge and original document.	better, the foregoing informatio	n is true and correct and	any attached copy	is a true copy of the
James A. Ohtf Registration No. 2 Stephen P. Catlin Registration No.	7,075 5. 36,101	Date: <u>July</u>	<u>3, 2007</u>	-

PATENT REEL: 019516 FRAME: 0549

AŞŞIGNM	ENT
----------------	-----

Name(s) (4) (4) (5) (6) In consideration of the sum of one dullar (\$1.00) and other good and valuable on paid in each of the maderisigned, each undersigned appear to assign, and hereby does assign, to set over the state of another than the sum of one dullar (\$1.00) and other good and valuable on paid in each of the maderisigned, each undersigned appear to assign, and hereby does assign, to set over the sum of one dullar (\$1.00) and other good and valuable on set over the sum of another than the sum of the maderisigned has the sum of the maderisigned has the sum of the sum				MOORGANIEAN				
Name(s) of lavestor(s) (4) (5) Saturu MAEDA (7) 10 outsiderables of the undersigned, each undersigned agrees to assign, and hereby does assign, to set over to see over the set of the undersigned, each undersigned agrees to assign, and hereby does assign, to set over the set ov			(1)					
(2) Saforn MAEDA (3) (3) Saforn MAEDA (4) (8) In consideration of the sum of one doublar (\$1.00) and other gured and valuable our paid to ack of the undersigned, each undersigned agrees to assign, and bereby does assign, to set over to (5) Insert Andreas of Assignee (9) ASSISIER KANSHA TOYOTA INDOSHA KABUSHIKE KAISHA and Assignee (9) ASSISIER KANSHA TOYOTA INDOSHA KABUSHIKE KAISHA TOYOTA INDOSHA KABUSHIKE MARINA INDOSHA I	(1-8)		(2)					
In consideration of the num of one dollar (\$1.00) and other good and valuable one paid in each of the maderagned, each undesigned agreet to assign, and bareby does assign, to set over to assignee (9) Lasert Andreas of Assignee (9) KAUSSHIN KANSHA AN CYCTA MOSSHOKE (14) Assignee (15) Lasert Andreas of (14) 1. Toyota-tho, Toyota-thi, Aichhete, 471-8771 Japan and 2-1 Toyota-tho, Toyota-thi, Aichhete, 471-8771 Japan and 2-1 Toyota-thi, Toyota-thi, Aichhete, 471-8771 Japan and 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			(3)	Satoru MAEDA	თ			
In consideration of the sum of gost delay (3.1.0) and other good and valuable our part of the each of the undersigned, each undersigned agrees to assign, and bereby does assign, to get over to Assignee (P) EARLY EAGLERY (ALDERY ALDESSING ALDERY (ALDESSING ALDERS) Assignment of Assignment (P) EARLY (ALDERS) EARLY (ALDE			(4)		(3)			
(10) Insert Address of Assignee (10) I. Toyota-cho, Toyota-cho, Alchieux of Assignee (10) Insert Address of Assignee (10) I. Toyota-cho, Toyota-cho, Alchieux of Assignee (10) Insert Address of Assignee (10) Insert Address of Assignee (10) Insert Address of Assignee (10) Insert Inse			paid to set over	each of the undersigned, each und	of one dollar (\$1.00) lersigned agrees to a	and other good and va ssign, and hereby does	luable consideration assign, transfer and	
Assigned 2-1, Toronda-cho, Knitra-chi, Acht-ken, 4-39-801, Incident, respectively (pertinanter designated as the Assignee) and Assignee's hum, successors, sessigns and logal experts the militer hight, title and interest for the United States of America as defined in 35 U.S.C. (2004, investions, and in all applications for patient including say and all provisions, increasing and increasants, and contractions, and all responsible and all Letters February and all provisions, increasants, and recommendors, and the say be granted on the invention known as the states of the same and the sa	(9)		(9)	TOYOTA JIDOSHA KABUSHIK KABUSHIKI KAISHA TOYOTA	IIDOZHOKKI IIDOZHOKKI			
the cultic right, tills and interest for the United States of America as decimen in 30 U.S.2. 2004. Invention, and all applications for pattern invention, and all applications for pattern inventions, undermation, substitute and miseus application(s), and all Letters Pattern of the cultivation, international, confirmation, substitute and miseus application howen as extraction, international, confirmation, substitute and miseus application howen as the application of the confirmation, substitute and miseus application between a confirmation, substitute and miseus application between the confirmation, substitute and miseus application for pattern in the United States of the which the undersigned has (have) expected an application for pattern in the United States of the variety of the pattern of the substitute of the variety of the variet	(10)		(10)	1, Toyota-cho, Toyota-shi, Alchi 2-1, Toyoda-cho, Kariya-shi, Alc	ken, 471-8571 Japa hi-ken, 448-8671 J <u>a</u>	n and pan, respectively		
Identification Strike Case Number, or Foreign Application Number (Attomey Doctor No. for which the undersigned has (have) executed an application for patent in the United States of on even date herewith or (12) Insert Date of Signing of (12) on Application (13) U.S. application (13) U.S. application (13) U.S. application (13) U.S. application (14) on (17) on (17) on (18) on (18) on (19) on (19			the eati invention	re right, title and interest for the Un or, and he all applications for patent when international configuration s	ited States of Americ Lincluding any and a substitute and reissue	ca as de <u>im</u> en m 35 U.S.A Il provisional, non-provi : application(s), and all L	is groot, to me Islanal, divisional, etters Patent,	
Such as Title, Case Number, or Foreign Application Number (Attorney Doctor No. for which the understigned has (have) executed an application for patent in the United States of on even date herewith or (12) Insert Date of Signing of (12) on Application Application (13) Alternative (13) U.S. application Serial Number (14) Heart undersigned agrees to execute all papers necessary in connection with any application and any continuing, division reisons applications for the invention, and any patens(s) issuing thereon, and also to execute separate assignments in connection with applications for the invention, and any patens(s) issuing thereon, and also to execute separate assignments in connection with applications and patents are the Assigned may deem assessary. (2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be dealared on any applications or continuation or division thereof, or any patent or recises application based thereon, for the invention, and also to execute separate assignments in connection with applications or continuation or division thereof, or any patent or recises application based thereon, for the invention, and any open any application or continuation or providence and part of a valid Property or similar agreements. 4) Each undersigned agrees to execute all papers and documents and perform any extending the action of providence of the U.S. Fatent and Trudemark Office to issue any and Patents of the United States patent to the Assigned. 5) Each undersigned authorizes and requests the Commissioner of the U.S. Fatent and Trudemark Office to Exact any of the control of the material patent of the control of the control of the united States	(11)		(11)	Failure Diagnosis Method Fo	r Reducing Agent.	Addition Valve	<u>.</u>	
for which the undersigned has (have) executed in application for patent in the United States of on even date herewith or (12) Insert Date of Signing of (12) on Application (13) Alternative (13) U.S. application Serial Number 11/790,928 [Bestification for Filed applications filed on April 23, 2007 (14) Each undersigned agrees to exercice all papers necessary in connection with any application and any confinuing, divisions explications for the invention, and any patentic) Issuing thereon, and also to execute papers assignments it connection with applications and patents as the Assignce may doesn necessary in connection with any interference which may be declared on any applications or confination or division thereoff, or any patent or reissue applications are continued agrees to percent all papers and documents and perform any act which may be necessary in connection with a set thereoff, or the invention, and to coope the Assignce in every way possible in obtaining evidence and going forward with such interference. 3) Each undersigned agrees to percent all papers and documents and perform any act which may be necessary in connect claims or provisions of the International Convention for Protection of Industrial Property or similar agreements. 4) Each undersigned agrees to percent all papers and documents and perform any act which may be necessary to obtain, national recommendation a grant of a valid United States patent to the Assignce. 5) Each undersigned minimizer and requests the Commissioner of the U.S. Fatent and Trudement Office to issue any and Patents of the United States resulting from all applications of the may be necessary to obtain, national recommendation and the propers are applications of the U.S. Fatent and Trudement Office to issue any and Patents of the United States resulting from all applications of the U.S. Fatent and Trudement Office and agrees that this assignment is binding on him and his heirs, successors, assigns and legal representation and covered and the patent of the United St		such as Title, Case Number, or Foreign	- (Attern					
Application (13) Alternative (13) U.S. application Serial Number 11739,928 Identification for filed applications filed on April 23, 2007 1) Each undersigned agrees to exertice all papers necessary in connection with any application and any continuing, division priestic assignments in connection with applications for the invention, and any patentic) Issuing thereon, and also to execute separate assignments it connection with applications and patents as the Assignor may deem necessary. 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared on any application or confirmation or division thermal, or any patent or release application based thereon, for the invention, and to coope the Assignor in every way possible in obtaining evidence and going forward with such interference. 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connectic chims or provisions of the International Convention for Protection of Industrial Property or similar agreements. 4) Each undersigned agrees to reprire mail affirmative extremative and protection and particles are all papers and occuments and perform any act which may be necessary to obtain, matchin or confirm by relate recommissions a great of a valid United Status patent to the Assignor. 5) Each undersigned agrees on perform all affirmative extremative are maintained and particles and protections of the U.S. Fatent and Tradement Office to issue any and Patents of the United Status resulting from a stid applications; to the assignor. 5) Each undersigned authorizes and requests the Commissioner of the U.S. Fatent and Tradement Office to issue any and agrees match this assignment is binding on him and his briefs, successor, assigns and legal representative. 6) Each undersigned healthy grants the firm of Ollife & Errationer, and against the successary or desirable in order to comply with the rules of the United Status Patent and Tradement Office recordation of		for which the undersigned has (have) executed an application for patent in the Uni						
Readifications or filed applications filed on April 23, 2007 1) Each undersigned agrees to exercte all papers necessary in connection with any application and any continuing, division and patents as the Assigned may patent(s) Issuing thereon, and also to execute supertic assignments in connection with applications and patents as the Assigned may be deal are do any application or continuing or division through on the invention or continuing or division through or any patent or releases application with any interference which may be deal and on any application or continuing or division through or application or continuing on continuing of the except and documents and perform any act which may be necessary in connection any application or continuing of the international Convention for Protection of Industrial Property or similar agreements. 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection or providence of the International Convention for Protection of Industrial Property or similar agreements. 4) Each undersigned agrees to perform all affirmative sens which may be necessary to obtain, instinction or providence of a great of a valid United States share to the Assigned. 5) Each undersigned anthorizes and requests the Commissioner of the U.S. Fatent and Tradement Office to issue any and Patents of the United States resulting from a said application(s) to the said Assigned, and with the convey the online interest herein assigned, and that he has not executed, and will not execute, and even and any applications and agreements in comflict and agrees that this assignment is binding on him and his heir, anorthesis, assigns and legal representatives. 6) Each undersigned hereby grants the firm of OLIFF & ERREDIA, c. t. the power to intert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office Inventor Signature Inventor Signature Liventor	(12)	Signing of	(12)	п	<u></u>			
identification for filed applications filed on April 23, 2007 1) Each undersigned agrees to execute all papers necessary in connection with any application and any continuing, division reisons applications for the invention, and any patent(s) issuing thereon, and also to execute separate assignments it connection with applications and patents as the Assignee may deem necessary. 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared on any application or continuation or division through, or any patent or reisons application based thereon, for the invention, and to coope the Assignee in every way pensible in obtaining evidence and going forward with such interference. 3) Each undersigned agrees to execute all papers may decrements and perform any act which may be necessary in connectical claims or provisions of the International Convention for Protection of Industrial Property or similar agreements. 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reist exeximination a great of a valid United States patent to the Assignee. 5) Each undersigned authorizes and requests the Commissioner of the U.S. Fatent and Tradement Office to issue any and Patents of the United States resulting from and and approximation(a) to the said Assignee, as Assignee of the entire interest, and covernants full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, and greenment in binding on him and his briers, uncreations, assigns and legal representatives. 6) Each undersigned hereby grants the firm of OLIFF & BERKIDUE, FLC the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office recordation of this document. In witness whereof, executed by the andersigned on the date(a) opposite the andersigned name(s). Inventor Signature Livento	(13)	Alternative	(13) t) S. application Secial Number	11/790,02\$			
reisons applications for the invention, and any patent(s) Issuing thereon, and also to execute separate assignments in connection with applications and patents as the Assignee may deem necessary. 2 Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared on any application or continuation or division thereof, or any patent or release application based thereof, for the invention, and to coope the Assignee in every way possible in obtaining evidence and going forward with such interference. 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connectications or provisions of the International Convention of Industrial Property or similar agreements. 4) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary to obtain, instintant or confirm by reise recommination a geant of a valid United States patent to the Assignce. 5) Each undersigned authorizes and requests the Commissioner of the U.S. Fatent and Tradement Office to issue any and Patents of the United States resulting from and appreciation(s) to the said Assignce, as Assignce of the entire interest, and covernants full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreements in conflict and agrees that this assignment is binding on him and his birds, successors, assigns and legal representatives. 6) Each undersigned hereby grants the firm of OLIFE & BERKINDE, p.C. the power to insert on this assignment any further identification that may be necessary or desirable in order to compily with the rules of the United States Patent and Trademark Office recordation of this document. In witness whereof, executed by the andersigned on the date(s) opposite the andersigned name(s). Inventor Signature Inventor Signature Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Con	,							
Date Inventor Signature Date June 6, 2007 Inventor Signature Date Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the Matther, then it should be signed before at least two witnesses who also sign here: Date Witness	applier any applier any applier che Ass claims recomm Patents full rigi and agr identifi	tions and patents as the Ass 2) Farh undersigned agolication or continuation or continuation or dignes in every way possible as for provisions of the Internal 4) Each undersigned agon provisions of the Internal 4) Each undersigned as for the United States result of the United States result in the convey the entire internations that this assignment is 6) Each undersigned he ication that may be necessar	ignee may of the control of the cont	idem necessary, ute all papers necessary in conner conf, or any putent or reissue appl g evidence and going forward with the all papers and documents and ention for Protection of Industrial som all affirmative sets which may patent to the Assignee. I requests the Commissioner of the d application(s) to the said Assign ssigned, and that he has not exeru the form of Other & REBREDGE.	tion with any interfication based theree he such interference, perform any act where the perform any act where the perform any act where the perform and Taken, as Assigned of the day and will not extend and legal represent the power to institute the performance that the pe	mence which may be de in, for the invention, and the may be necessary in agreements. by an alutain or confir- radement Office to issu- the entire interest, and contents in centerives.	clared concerning d to cooperate with a connection with m by reissue or early and all Letters oversants that he has a conflict herewith, any further	
Date June 6, 2007 inventor Signature Satoru MAEDA Date Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the Matther, then it should be signed before at least two witnesses who also sign here: Date Witness		In witness whereof, exec	ated by th	e nadersigned on the date(s) opp	osite the andersig	ned name(s).		
Date June 6, 2007 inventor Signature Satoru MAEDA Date Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the Matther, then it should be signed before at least two witnesses who also sign here: Date Witness	Date		_	Inventor Signature			(SEAL)	
Date Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the first them it should be signed before at least two witnesses who also sign here: Date Witness	Date			Inventor Signature _				
Date Inventor Signature Date Inventor Signature Date towentor Signature Date towentor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the function, then it should be signed before at least two witnesses who also sign here: Date Witness	Date	June 6, 2	007	Inventor Signature	Satoru	MAEDA	· (SEAL)	
Date Inventor Signature Date Inventor Signature Date Inventor Signature Within assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the state of the signal part of the	Date			Inventor Signature _	, <u></u>		(SEAL)	
Date	Date	•				<u></u> _	(ŞEAL)	
Date Inventor Signature Lineartor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the Mitnelther, then it should be signed before at least two witnesses who also sign here: Date Witness								
Date Inventor Signature This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the strength of the signed before at least two witnesses who also sign here: Date Witness	Date							
This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if ourside the full then it should be signed before at least two witnesses who also sign here: Date				-				
		This assignment should p	referably be	signed before: (a) a Notary Publ	i∈ if within the U.S.			
						<u>-</u> .		
··· 	Date			Witness			·	

PATENT **REEL: 019516 FRAME: 0550**

			AS	SIGNMEN			
		(1)	Daisuke SHIBA	<u>TA</u>			
(1-8)	Insert	(2)	<u>Hiroshi SA</u> WAI) <u>A</u>			
	Name(s) of Inventor(s)	(3)	Satorn MAEDA	<u> </u>	(7)		 .
		(4)			(8) _	<u> </u>	
		paid to e	each of the updecs!	ion of the sum igned, each one	of one dollar (51 lersigned egrees	.00) and other good and va to assign, and hereby does	luable consideration assign, transfer and
(9)	Insert Name of Assignee	(9)	TOYOTA JIDOSE KABUSHIKI KAI	IA KABUSHIR SHA <u>TOY</u> OTA	I KAISHA and IIDOSHOKKI		`
(I ₀)	Insert Address of Assignee	(10)	1, Tayota-che, T 2-1, Tayoda-che	oyota-shi, Aich , Kariya <u>-shi, Ai</u>	ken, 471-8571 J hi-ken, 448-867	apari and I Japan, respectively	
		the entire	e right, title and in n, and in all application, international arion, trissues and re	icrest for the Un ations for palen , confirmation, examination cer	ition States of Ar t including any a substitute and rei tingules that may	s, successors, assigns and I nerice as defined in 35 U.S. nd all provisional, non-pre- sent application(s), and all the granted on the invention	isional, divisional, Letters Pamat,
(11)	luseri Identification	(11)	Failure <u>Diag</u> no	sis Method F	or R <u>educing Ag</u>	ent Addition Valve	
	such as Title, Case Number, or Foreign Application Number	-(Attora	ey Docket No	132282)
	-	for whi	ch the undersigned I data herewith or	i bas (have) 🗱	ented an applica	ation for patent in the Unit	ed States of America
(12)	Insert Date of Signing of Application	(Z2) c	<u>.</u>				
(13)	Alternative Identification for filed applications	(13) U filed	J.S. application Sc on April 23, 2		<u>11/790,028</u>		
any application and application and application application application and application and application and application and application application and applic	1) Each undersigned agrapplications for the inventions and patents as the Ass 2) Each undersigned ago dication or continuation or ignate in every way possible 3) Each undersigned agor provisions of the Internation of a valid Ur. 5) Each undersigned agorthous agrant of a valid Ur. 5) Each undersigned agorth the Convey the entire internation at the United States result at the convey the entire international that this assignment is 1. 6) Each undersigned be deation that may be processed allon of this document.	on, and any ignee may ignee may ignee may ignees to execute in obtaining the state of the state in obtaining and in office in office in obtaining on the state in obtaining on on the state in office in obtaining on the state in other in obtaining on the state in other in	patent(s) testing decay necessary. Inte all papers necessary, and all papers and grants all papers and exidence and grants all papers and exident for Protection all affirmative i patent to the Assidirection application(s) to saigned, and that I him and his heirs,	essary in count t or relssue app sing forward w documents and ion of Industria a acts which management guee. umissioner of the the said Assign the bas not exce spreessors, as	etion with any in lication based it th such interfere perform any ac- I Propecty or say be necessary it to U.S. Patent an nee, as Assignee inted, and will no igns and legal of	therference which may be of the country, for the invention, a necessary which may be necessary that agreements to obtain, maintain or confusion of the entire interest, and mexcute, any agreements to inverse the country on this assignment of inverse or i	isciared concerning and to cooperate with in connection with tem by reissue or the any and all Letters covenants that he has in conflict herewith, any further
	In witness whereof, exec	ated by 41	e undersigned on	the date(s) or	posite the unde	rsigned name(s).	
Date	June 4, 200	7	Invento	r Signature	Dairuko	<u>shilota</u>	(SEAL)
Dale	June 4, 20	7				Sawada	
Date			Invent	or Signature			(\$EAL)
Date			[nvente	er Signature			(SEAL)
Date			<u>I</u> nvenb			_ 	
Date			Invent	or Signature	· ·		(SEAL)
Date			Invest				
Date			Invent				
lf ncit	This assignment should pure, then it should be signed	preferably b before at l フルカ	es signed before: () Least two witnesses 17	a) a Notary Pul a who also sign	lic if within the	U.S.A. (b) 2 U.S. Consul i	f outside the U.S.A.

RECORDED: 07/03/2007

Finess Grij Milgosh PATENT