

MOLECULAR DIAGNOSTIC KITS  
BASED ON MULTIPLEX PCR  
AND MACROARRAY CHIP

**DNA  
FLOW**  
TECHNOLOGY

## HPV DIRECT FLOW CHIP

- Simultaneous detection and genotyping of 36 genotypes of HPV :
  - **High-risk** genotypes: 16, 18, 26, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68, 73, and 82.
  - **Low-risk** genotypes: 6, 11, 40, 42, 43, 44, 54, 55, 61, 62, 67, 69, 70, 71, 72, 81, 84, and 89.
- No DNA extraction / purification.
- L1 consensus probe.
- Compatible with liquid-based cytologies, cytological swabs, and paraffin-embedded samples.

**B:** Hybridization control; **C:** DNA quality control (Human beta-globin gene);  
**U:** Universal control (L1 consensus probe); **numbers:** Indicate the HPV genotype.

B	33	58	42	71	16	52	B	
B	35	59	43	72	18	53	6	69
C	39	66	44/55	89	26	56	11	70
U	45	68	54	84	31	58	40	71
16	51	73	61	B	33	59	44/55	72
18	52	82	62/81	C	35	66	54	89
26	53	6	67	U	39	68	61	84
31	56	11	69	42	45	73	62/81	
	B	40	70	43	51	82	67	

## TICK-BORNE BACTERIA FLOW CHIP

- Simultaneous detection of 7 tick-borne bacteria genera.
- The only validated method for simultaneous molecular identification of all these groups of bacteria.
- Patent Protection.
- Compatible with human, animal, and tick samples.

**B:** Hybridization control; **CI:** Internal control;  
**BG:** DNA quality control (Human beta-globin gene); **GR:** Rickettsia;  
**TG:** Rickettsia Typhus Group; **SFG:** Rickettsia Spotted Fever Group;  
**EH:** Ehrlichia; **AN:** Anaplasma; **FR:** Francisella; **BAR:** Bartonella;  
**BAR-2:** Bartonella-2; **BOR:** Borrelia; **COX:** Coxiella.

B			FR			B	
B	GR				EH		BOR
CI	TG		BAR		AN		
BG	SFG						COX
			BAR-2	B			FR
				CI			
	EH		BOR	BG	GR		BAR
	AN				TG		BAR-2
	B		COX		SFG		

## VIRAL CNS FLOW CHIP

- Simultaneous detection (in one step RT-PCR) of a panel of DNA and RNA viruses causing neurological infections.

**B:** Hybridization control; **CI:** Internal control;  
**BG:** DNA quality control (Human beta-globin gene);  
**HSV-1:** Herpes Simplex Virus -1; **HSV-2:** Herpes Simplex Virus -2;  
**CMV:** Cytomegalovirus; **EBV:** Epstein Barr Virus; **VZV:** Varicella-Zoster Virus;  
**TOSV:** Toscana Virus; **EV:** Enterovirus; **HPeV:** Parechovirus.

B							B
B							
CI	HSV-1	EBV			CMV	TOSV	HPeV
BG							
	HSV-2	VZV	EV	B	HSV-1	EBV	EV
				CI			
	CMV	TOSV	HPeV	BG	HSV-2	VZV	
	B						

## BACTERIAL CNS FLOW CHIP

- Simultaneous detection of a panel of bacteria causing meningitis.

**B:** Hybridization control; **CI:** Internal control;  
**BG:** DNA quality control (Human beta-globin gene);  
**MTBc:** Mycobacterium tuberculosis complex; **SPNEU:** Streptococcus pneumoniae;  
**SAGAL:** Streptococcus agalactiae; **CRYPT:** Cryptococcus neoformans (fungus);  
**HINF:** Haemophilus influenzae; **LEIS:** Leisteria monocytogenes;  
**ECOLI:** Escherichia coli; **TPA:** Treponema pallidum; **NEIS:** Neisseria meningitidis;  
**COX:** Coxiella burnetii; **BOR:** Borrelia burgdorferi; **TEM:** extended-spectrum  $\beta$ -lactamase TEM; **SHV:** extended-spectrum  $\beta$ -lactamase SHV; **CTX-M:** extended-spectrum  $\beta$ -lactamase CTX-M.

B	HINF	TEM	MTBc	B	
B	LEIS	SHV	SPNEU	COX	
CI	ECOLI	CTX-M	SAGAL	BOR	
BG	TPA		CRYPT		
	MTBc	NEIS	B	HINF	
	SPNEU	COX	CL	LEIS	TEM
	SAGAL	BOR	BG	ECOLI	SHV
	CRYPT			TPA	CTX-M
	B			NEIS	

## SEPSIS FLOW CHIP

- Simultaneous detection of a panel of pathogens responsible for sepsis, including, Gram + Coccus, Gram - Bacillus, Fungi, and antibiotic resistant forms, MRSA, mecA, vanA, vanB, ESBL, and Carbapenemases (covered by patent).

**B:** Hybridization control; **CI:** Internal control; **BG:** DNA quality control ((Human beta-globin gene)); **PAER:** Pseudomonas aeruginosa;  
**SPNEU-1:** Streptococcus pneumoniae; **G+:** gram-positive bacteria;  
**SMALTO:** Stenotrophomonas maltophilia; **CAND:** Candida spp.; **SHIG:** Shigella spp.; **ABAU:** Acinetobacter baumannii; **SMAR:** Serratia marcescens;  
**SAGAL:** Streptococcus agalactiae; **STAPHYL:** Staphylococcus spp.;  
**SA:** Staphylococcus aureus; **ECOLI:** Escherichia coli; **ENTEROB:** Enterobacter spp.; **SPNEU-2:** Streptococcus pneumoniae and S. mitis/oralis; **CALB:** Candida albicans; **LEIS:** Leisteria monocytogenes; **ENTEROC:** Enterococcus spp.;  
**PAER-1:** Pseudomonas aeruginosa; **KLEB-1:** Klebsiella pneumoniae;  
**STREP:** Streptococcus spp.; **NEIS:** Neisseria meningitidis; **PROT:** Proteus mirabilis;  
**KLEB:** Klebsiella pneumoniae; **mecA:** Methicillin resistance gene; **vanA:** Vancomycin resistance gene; **vanB:** Vancomycin resistance gene; **kpc:** Class A carbapenemase; **sme:** Class A carbapenemase; **nmc/imi:** Class A carbapenemase; **blaTEM:** extended-spectrum  $\beta$ -lactamase TEM;  
**blaSHV:** extended-spectrum  $\beta$ -lactamase SHV; **blaCTX-M:** extended-spectrum  $\beta$ -lactamase CTX-M;  
**ges:** Class A carbapenemase; **vim:** Class B carbapenemase; **gim:** Class B carbapenemase; **smp:** Class B carbapenemase; **ndm:** Class B carbapenemase; **sim:** Class B carbapenemase; **imp3:** Class B carbapenemase; **imp15:** Class B carbapenemase;  
**Imp19:** Class B carbapenemase; **oxa 23:** Class D carbapenemase; **oxa 24:** Class D carbapenemase; **oxa 48:** Class D carbapenemase; **oxa 51:** Class D carbapenemase; **oxa 58:** Class D carbapenemase.

B	SHIG	LEIS	kpc	spm	ECOLI	vanB	B		
B	ABAU	ENTEROC	sme	ndm	ENTEROB	vanA	ges	oxa23	
CI	SMAR	PAER-1	nmc/imi	sim	SPNEU-2	mecA	vim	oxa24	
BG	SAGAL	KLEB-1	blaTEM	imp3	SMALTO	CALB	KLEB	gim	oxa48
PAER	STAPHYL	STREP	blaSHV	imp15	CAND	SHIG	PROT	kpc	oxa51
SPNEU-1	SA	NEIS	blaCTX	imp19	B	ABAU	LEIS	spm	oxa58
G+	ECOLI	PROT	ges	oxa23	CI	SMAR	ENTEROC	sme	ndm
SMALTO	ENTEROB	KLEB	vim	oxa24	BG	SAGAL	PAER-1	nmc/imi	sim
CAND	SPNEU-2	mecA	gim	oxa48	PAER	STAPHYL	KLEB-1	blaTEM	imp3
	CALB	vanA	oxa51	SPNEU-1	SA	STREP	blaSHV	imp15	
	B	vanB	oxa58	G+	NEIS	blaCTX	imp19		

## PRODUCTS IN DEVELOPMENT

- **KRAS/NRAS/BRAF MUTATION FLOW CHIP**  
Simultaneous detection of point mutations in KRAS, NRAS, and BRAF genes in colon cancer.
- **MYCOBACTERIA DNA FLOW CHIP TESTS**
  - Genotyping of MTBC members and clinically relevant MOTT species.
  - Identification of MDR-TB (multidrug resistance) and XDR-TB (extreme drug resistance).
- **MOLECULAR ALLERGY FLOW CHIP** (based on Immuno-Flow Technology)  
Molecular diagnosis of allergy by reverse dot blot onto an array of environmental and food recombinant allergens.

## INSTRUMENTS

- DNA Flow Technology
- Reverse dot blot hybridization
- Supported by hybriSoft (advanced management software)
- Reagents supplied ready to use
- Engineered and manufactured by Vitro S.A.



- Fully automated (robotic arm)
- 1-24 samples
- 30-120 min.
- UV light for DNA decontamination
- Bar-code identification (reagents; samples)
- Ability to perform two techniques at the same time



- Semi-automated
- 1-12 samples
- 25-45 min.



**Molecular diagnostic kits  
developed and manufactured by**

 **master diagnóstica**

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