



Jafron Biomedical Co. Ltd., established in 1989, is a leading enterprise in Chinese blood purification industry.

With the goal of providing know-how and innovation in blood purification industry, we are open to the world and inviting you to join us for this valued and loving career!

#### JAFRON BIOMEDICAL CO., LTD.

Address: No. 98 Technology Six Road, High-tech Zone, Zhuhai, Guangdong, China  
Tel: 0086-756-3619986 0086-756-3619196  
E-mail: [overseatrade@jafron.com](mailto:overseatrade@jafron.com)  
Post Code: 519080  
Website: [en.jafron.com](http://en.jafron.com)



Jafron



- CE0197
- ISO9001 & ISO13485



- 4500 m<sup>2</sup> GMP workshop



- Area of 65000m<sup>2</sup>
- > 1000 employees



# JAFRON FOR THE WORLD

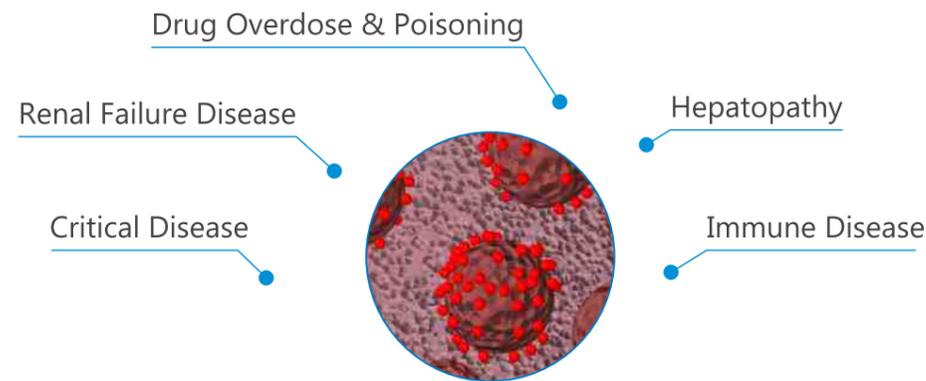
The largest manufacturer of adsorption columns in the world

# Hemoperfusion · Advanced Technology

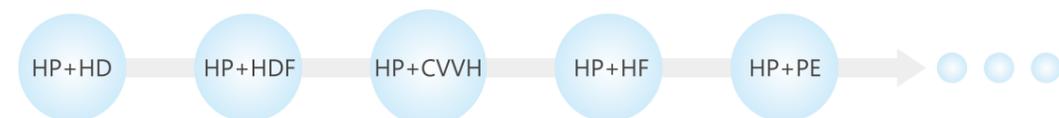
## A Blood Purification Therapy: Adsorb Harmful Substances in Blood

- 1912 Diffusion on animal
- 1914 Plasma exchange (PE) first used in clinic
- 1923 Peritoneal dialysis (PD) first used in clinic
- 1926 Hemodialysis (HD) first used in clinic
- 1945 HD first successfully saved renal patient's life
- 1964 Charcoal adsorption (HP) first used in clinic
- 1969 Hemofiltration (HF) first used in clinic
- 1977 Continuous renal replacement therapy (CRRT) first used in clinic
- Material technology developing...**
- 2002 **HA resin hemoperfusion cartridge** first used in clinic
- 2005 **DNA Immunoabsorbent Column** first used in clinic

## HP Recommendations



## Combination Therapies



# Jafron Products (Efficiency & Safety)

## Disposable Hemoperfusion Cartridge



Neuro-macroporous resin (HA series column)

## Specific Adsorbent Cartridges



**BS330**  
Bilirubin Adsorption  
Anion-exchange resin  
(BS Bilirubin Adsorbent Column)



**DNA230**  
SLE  
Immunoabsorption resin  
(DNA Immunoabsorbent Column)

## Machines



**DX-10**  
Blood Purification Machine



**JF-800A**  
Portable Hemoperfusion Machine

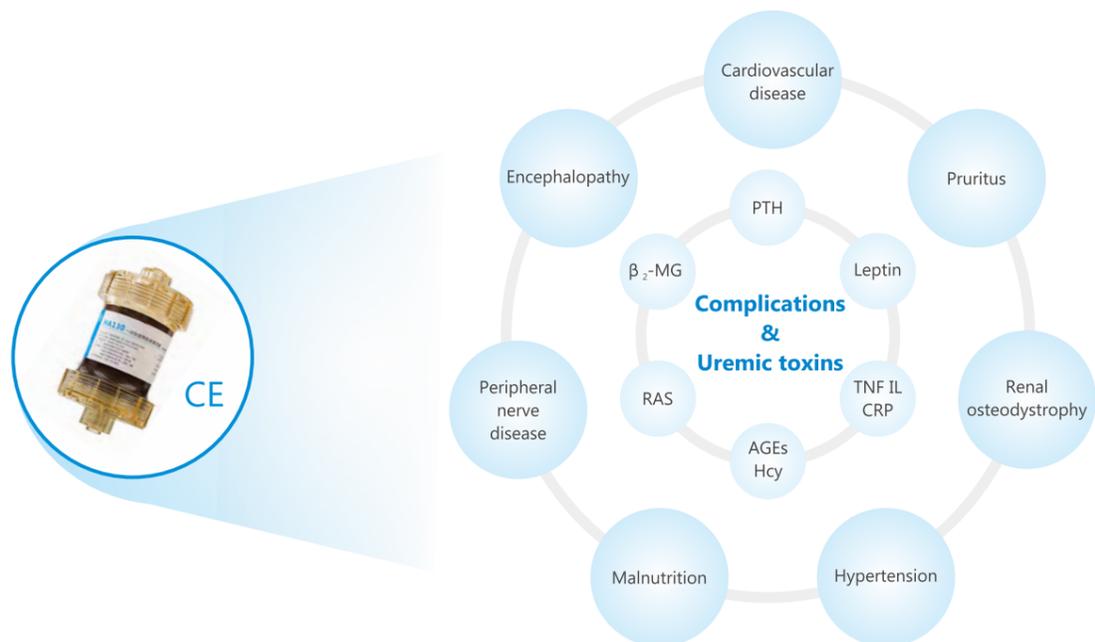
# Renal Failure Disease

## HA130 Disposable Hemoperfusion Cartridge ( For ESRD Patients )

### Combined Artificial Kidney — A Leading Blood Purification Technology

Combined Artificial Kidney is a blood purification treatment, combining hemoperfusion (HP: HA130) with hemodialysis/hemodiafiltration, to comprehensively clear uremic toxins.

- HP (HA130) can absorb middle molecular toxins and protein-bound toxins.
- HD can clear small molecular substances and excessive water.

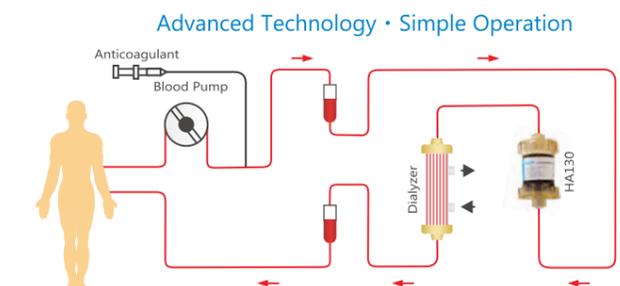


### HD/HDF+HP (HA130):

- Effectively clear **middle and protein-bound uremic toxins**, relieve symptoms of the **ESRD complications**.
- **16 years'** clinical application, **85%** market share in China, application in over **3400 hospitals**, treatment for **1.5 million** ESRD patients.
- **Flexible application**. Compatible with all the blood purification machines and various blood purification therapies such as HD, HDF and CVVH.
- **Water-saving** & environment-friendly

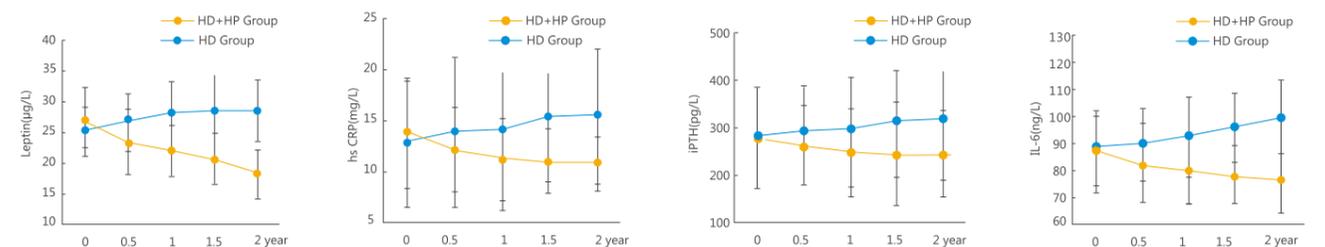
### Combined Artificial Kidney: HD/HDF+HP

At present, HD/HDF+HP is the **preferred therapy** for clearance of uremic toxins in ESRD. Superior capability & Comprehensively remove uremic toxins

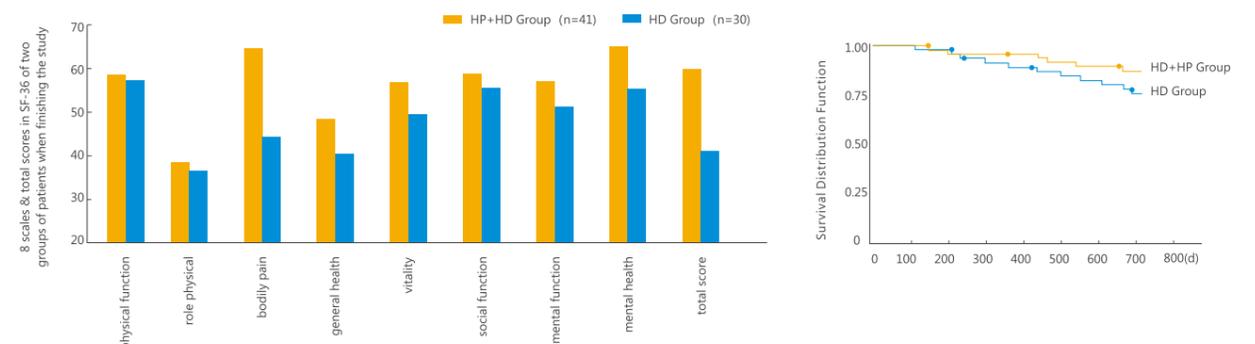


### HD+HP Provides a Better Blood Purification Therapy for ESRD

- Fully clear toxins



- Improve life quality / Prolong lifespan



**References:** Shun-Jie Chen, Geng-Ru Jiang, Jiang-Ping Shan, et al. Combination of maintenance hemodialysis with hemoperfusion: A safe and effective model of artificial kidney. *The International Journal of Artificial Organs*, 2011, 34(4): 339-347.

# Drug Overdose & Poisoning

## HA230 Disposable Hemoperfusion Cartridge

( For various drug poisonings and intoxication )

### Hemoperfusion — The Key to Acute Poisoning

HA230 efficiently adsorbs toxins in blood and relieves the symptoms of **acute poisoning**.

Clinical practices prove an **ideal efficacy** of Jafron HA230 in **drug poisoning and intoxication** caused by fat soluble poison or toxicant that is easily combined with plasma protein.

### Application Recommendation

- Organophosphorus pesticide poisoning
- Rodenticide poisoning
- Industrial poisoning
- Herbicide poisoning
- Biotoxication
- Other drugs and toxication

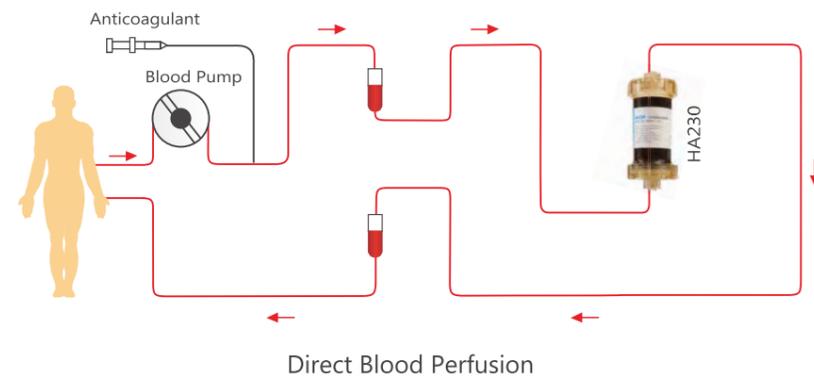
#### Comparison with conventional hemoperfusion adsorbent

- More effective and specific
- Better biocompatibility and safer

#### Comparison with traditional medical treatment

- Save rescue time: conduct HP before knowing category and concentration of poisons.
- Remove unknown or mixed toxins.
- Protect important organs: quickly adsorb drugs in blood and avoid damaging organs.
- Especially for poisonings without antidote.

### Simple and Convenient Operation on Any Blood Purification Machine



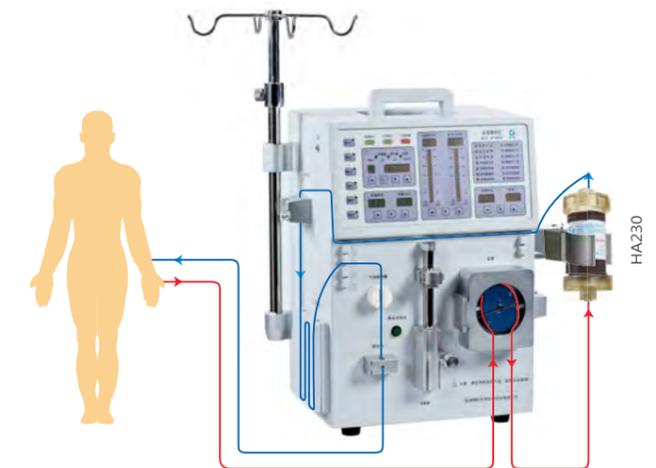
### Widely Clear Various Drugs and Poisons

Table Comparison Between HD and HP on Drug Clearance Effect

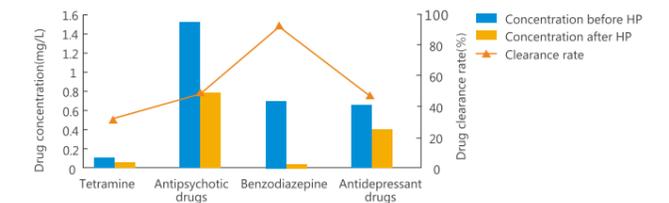
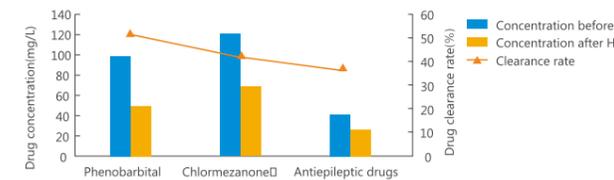
Drugs	HD	HP (neutral macroporous resin)
Barbiturates	+ ~ ++	+++
Glutethimide	- ~ ±	++ ~ +++
Sedative-hypnotics		
Methaqualone	± ~ +	++++
Diazepam		++++
Anodyne		
Salicylate	+++	++ ~ +++
Digitoxin	+	++ ~ +++
Cardiovascular drugs		
Quinidine	± ~ +	++
Procainamide	+ ~ +++	++++
Organophosphorus pesticide		
Dimethoate	++	+++
DDVP		++++
Other drugs		
Paraquat		+++

### HA230 + JF-800A Hemoperfusion Machine

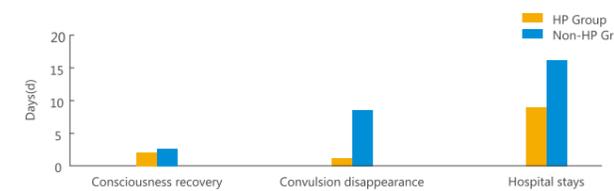
For emergency cases and units that need simple HP facilities.



### Improve the Clearance Rate of Drugs and Poisons



### Significantly Improve Therapeutic Effect



# Critical Disease

## HA330 Disposable Hemoperfusion Cartridge ( For severe and critical disease in ICU )

### HA330 — Unique Efficacy for Critical Disease

HA330 effectively and specifically removes **inflammatory mediators**, regulates the **body immunity** and performs unique efficacy in treating critical disease.

- Clear inflammatory mediators such as IL-6, TNF- $\alpha$ , CRP, etc.
- Improve hemodynamics and injured organ function, reducing the mortality rate.

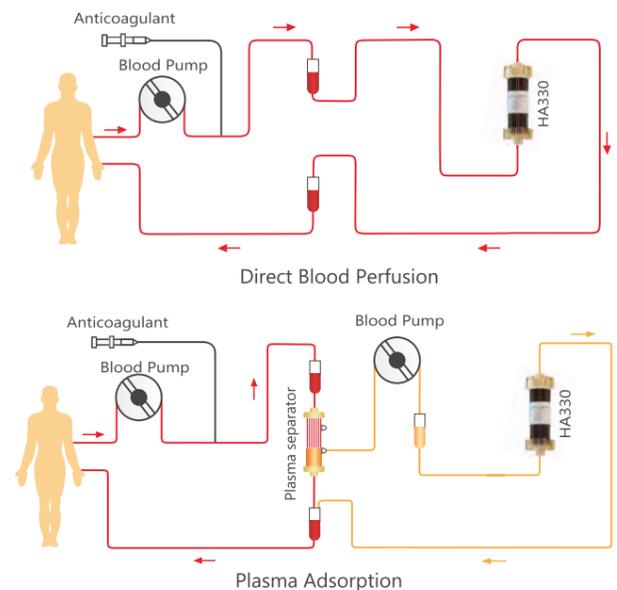
### Application Recommendation

- Sepsis
- Severe acute pancreatitis
- Systemic inflammatory response syndrome (SIRS)
- Multiple organ dysfunction syndrome (MODS)
- Others

### Flexible Combination with Any Other Blood Purification Therapies

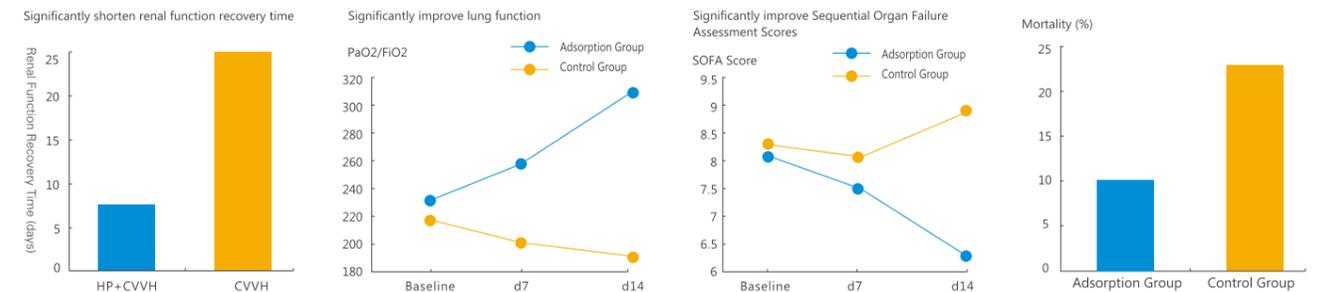
- HP+CVVH, CPFA, PFAD, HP+HVHF, etc
- Convenient connection on blood purification devices

### Safety Assurance & Simple Operation

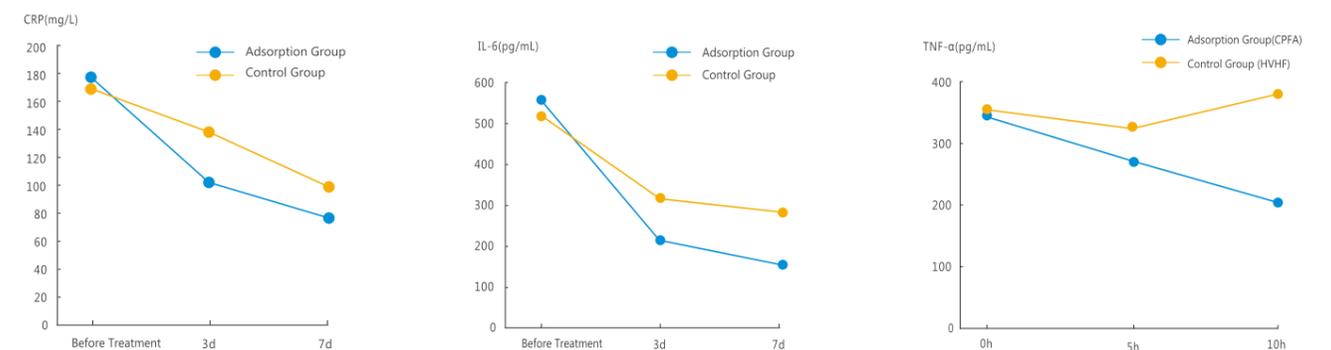


### HA330 Provides Better Therapy for Critical Disease.

- HA330 can promote the recovery of organ function<sup>[1-2]</sup>, reduce severe acute pancreatitis (SAP) mortality and improve critical diseases scores.<sup>[3-4]</sup>



- HA330 can effectively clear excessive inflammatory mediators.<sup>[5-6]</sup>



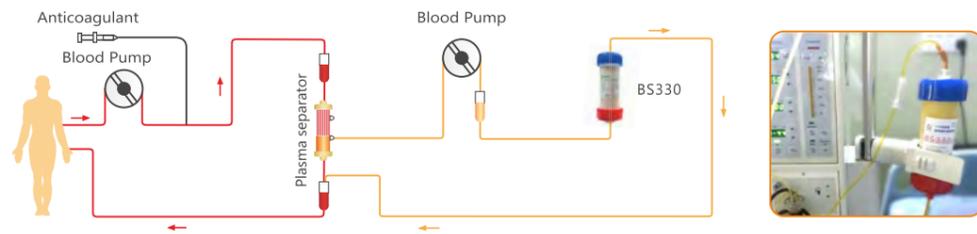
#### References:

- [1] Zhao Huangsi, Rong Wang, Wei Su, et al. Removal of humoral mediators and the effect on the survival of septic patients by hemoperfusion with neutral microporous resin column [J]. Therapeutic Apheresis and Dialysis, 2010, 14(6): 596-602.
- [2] Tang Yi, Zhang Ling, Yang Yingying, et al. Hemoperfusion plus continuous veno-venous hemofiltration for patients with sepsis and acute kidney injury [J]. Medical Journal of West China, 2012, 24(2): 233-235, 238.
- [3] Mo Yanbo, Yuan Qiang, Li Xin, et al. Effects of hemoperfusion on partial inflammatory cytokines in severe acute pancreatitis patients [J]. Journal of Internal Intensive Medicine, 2012, 18(3): 163-164.
- [4] Yang Xiaobo. Clinical therapeutic effect of hemoperfusion combined with hemofiltration in patients with severe acute pancreatitis [J]. Chinese Journal of Integrated Traditional and Western Medicine in Intensive and Critical Care 2011, 18(1): 35-36.
- [5] Huang Zhao, Wang Sirong, Liu Jiyun. Removal of inflammatory cytokines by hemoperfusion for protecting the kidney from acute injury in patients with sepsis [J]. Chinese Journal of Emergency Medicine 2011, 20(1): 60-64.
- [6] Mao Huijuan, Yu Shu, Zhang Bo, et al. Effects of coupled plasma filtration adsorption on serum cytokines in patients with multiple organ dysfunction syndromes [J]. Chinese Journal of Blood Purification, 2009 (8)2: 70-75.

# Hepatopathy

## BS330 Plasma Adsorption Cartridge ( For hyperbilirubinemia and hyperbileacidemia )

BS330, filling with anion-exchange resin, can specifically **adsorb bilirubin** and **bile acids**. It works effectively to relieve the symptoms of **hyperbilirubinemia** and **hyperbileacidemia**.

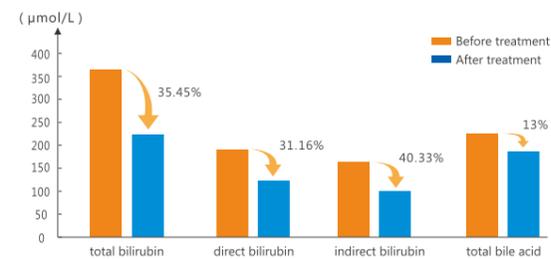


### Laboratory Test Results

Adsorption test result of plasma in vitro, the efficacy of adsorption for 6 hours:

adsorption duration (h)	circulating plasma volume	the average decreased total bilirubin
2	3600	59.68%
4	7200	67.16%
6	10800	71.06%

### Clinic Trial of BS330

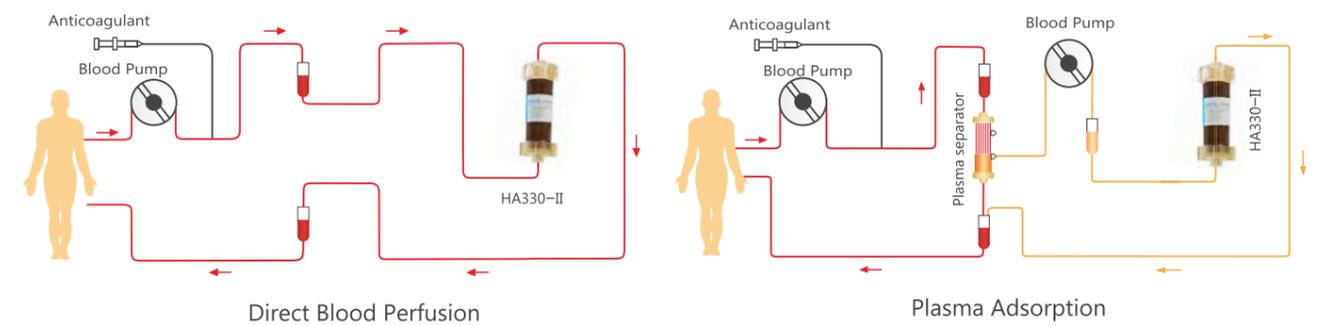


## HA330- II Disposable Hemoperfusion Cartridge ( For liver disease )

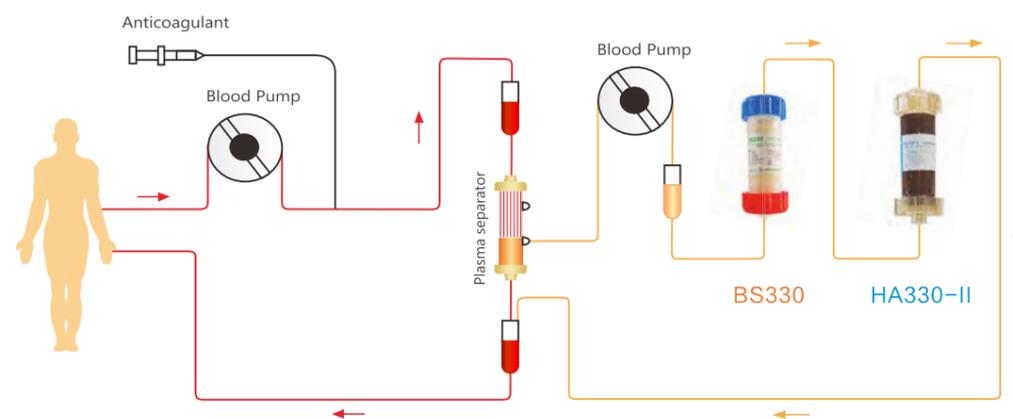
HA330- II extensively adsorbs **middle molecular toxins** induced by **liver disorder**, such as inflammatory mediators, ammonia, phenol, mercaptan, etc.

Recommend for drug-induced hepatitis, hepatic failure & complications such as hepatic encephalopathy, etc.

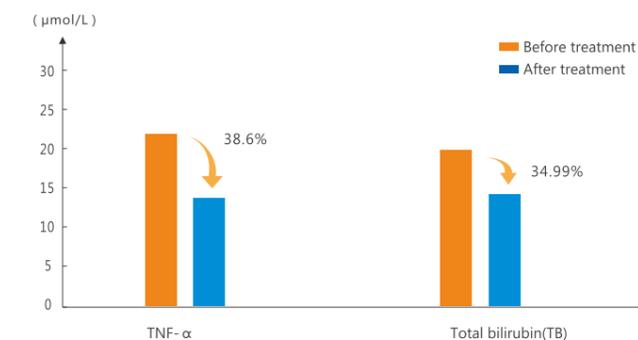
### Flexible Operation



## BS330 + HA330- II (DPMAS) Comprehensive Solution for Hepatopathy



The Double Plasma Molecular Adsorption System (DPMAS) specifically adsorbs **bilirubin**, effectively clears **inflammatory mediators**, eases inflammation and immune responses as well as considerably relieves the symptoms of hepatopathy and eventually improves the **long-term prognosis** of patients.



# Immune Disease

## DNA230 Immunoabsorbent Column ( For Systemic Lupus Erythematosus )

### Created in China · World-leading

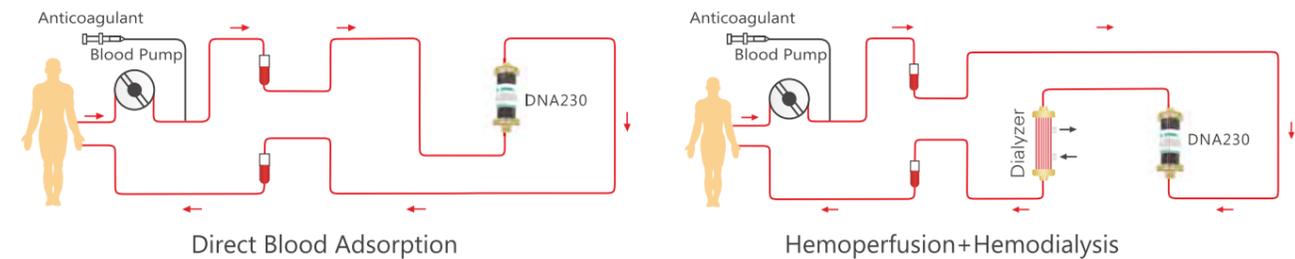
DNA Immunoabsorbent Column is a world-leading blood purification technology created in China, especially for Systemic Lupus Erythematosus (SLE) and its complications.

DNA Immunoabsorbent Column can specifically adsorb ANA& anti-ds-DNA and clear pathogenic immunologic complexes, accordingly ease SLE symptom, protect kidney function, enhance drug sensitivity, reduce the side effect of medicine treatment and improve patients' prognosis.



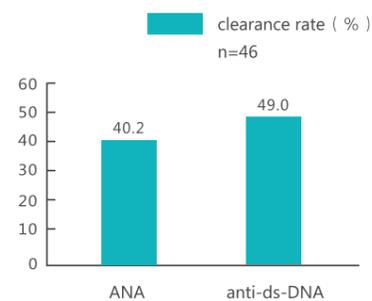
- High specificity: **immune reaction**, specifically recognize and bind anti-DNA antibodies, antinuclear antibodies and their immune complexes.
- High safety: good **biocompatibility**, high mechanical strength of adsorbents, stable adsorption.
- Convenience: direct blood adsorption, suitable for most blood purification machines.

### Common Treatment Modes of DNA Immunoabsorbent Column

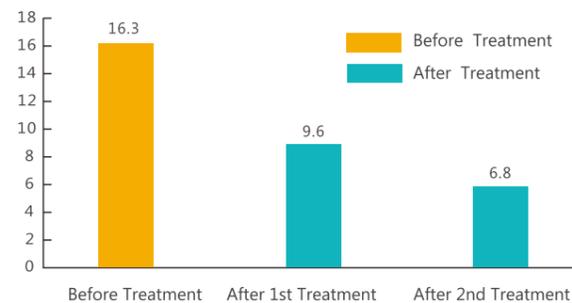


### Clinical Study Conclusion

Reduce anti-ds-DNA and ANA titre



Improve patients' symptoms



SLEDAI Score ( P < 0.001 )  
SLEDAI: Systemic Lupus Erythematosus Disease Activity Index

## HA280 Disposable Hemoperfusion Cartridge

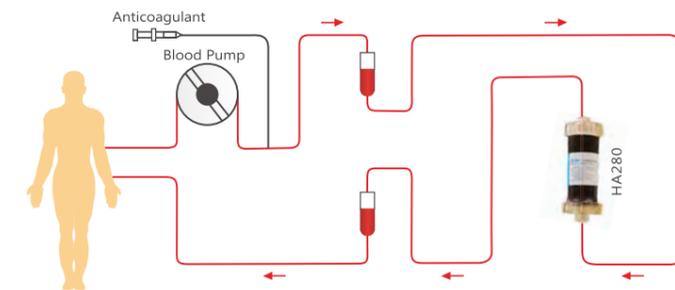
( For autoimmune diseases such as allergic purpura, psoriasis, rheumatoid arthritis, etc. )

### HA280 — Rapid Relief from Autoimmune Disease

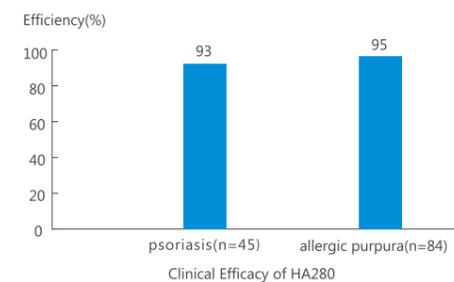
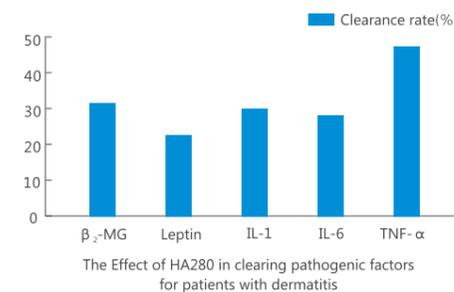
HA280 effectively and specifically removes numerous immune related pathogenic factors and improves prognosis.

- Remove pathogenic factors such as IL-1, IL-6, TNF- $\alpha$ , INF- $\gamma$ , etc.
- Clear middle-to-large molecular toxins such as Leptin,  $\beta_2$ -MG, PTH, CRP, etc.

### Advanced Technology · Simple Operation

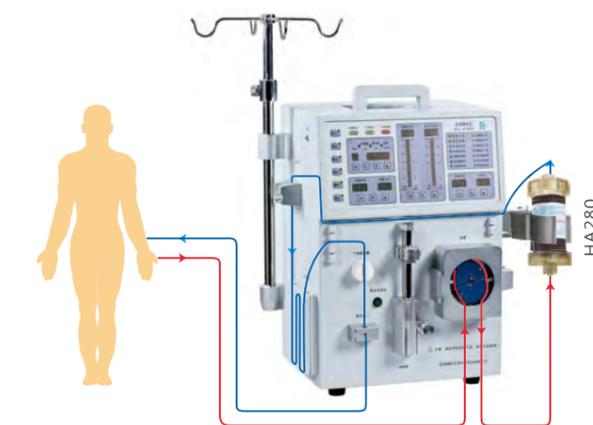


### Clinical Efficacy



### HA280 + JF-800A Hemoperfusion Machine

For emergency cases and units that need simple HP facilities.



### References:

- [1] Sha Yugen, Zhao Fei, Ding Guixia, et al. Hemoperfusion hormone withdrawal difficulties severe allergic purpura [J]. The Journal of Practical Medicine, 2014, 30 (4): 665-666.
- [2] Wang Mei, 72 cases of pediatric allergic purpura nursing of hemoperfusion therapy [J]. Nursing Practice and Research, 2012, 9 (7): 64-65.
- [3] Yang Fang, Peng Fangrong, Dang Xiqiang, et al. Application of hemoperfusion in pediatric immune disease and care [J]. Today Nurse, 2011, 2: 59-60.
- [4] Song Qiuhe, Zhang Ying, Zhou Jinzhi, et al. Blood purification technology in the treatment of psoriasis [J]. Chinese Journal of Blood Purification, 2010, 9 (4): 209-211.
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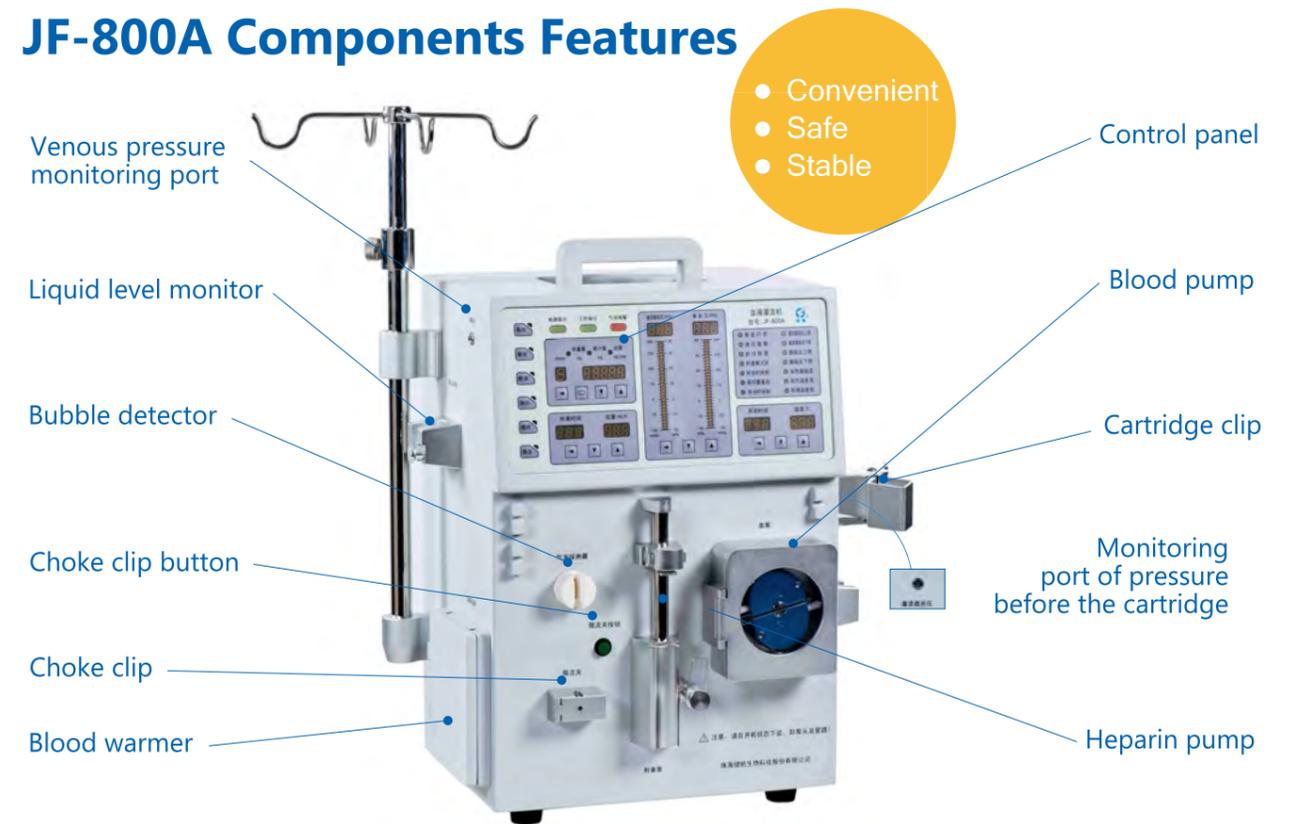


# DX-10

## Blood Purification Machine

- Multi-functional
- Smart & Safe
- Economical & Practical

## JF-800A Components Features



## DX-10 Blood Purification Machine Parameters

Summary		Monitoring System		Pump	
Size	500mm × 340mm × 1500mm	Insufficient blood supply	Ultrasonic monitoring	Blood pump (BP)	15~225mL/min, ± 3 mL/min or -5~10% of the reading
Weight	70Kg	Air bubble	Ultrasonic monitoring	Filtrate Pump (FP)	5~120mL/min, ± 3 mL/min or ± 10% of the reading
Mainboard	PLC	Liquid injection	Ultrasonic monitoring	Dialysate Pump (DP)	2~50mL/min, ± 2 mL/min or ± 10% of the reading
Display screen	0.4 inch colored LCD touch screen	Disconnected liquid	Ultrasonic monitoring	Replaced solution Pump (RP)	4~120mL/min, ± 3mL/min or ± 10% of the reading
Power supply	AC 220V 50Hz	Liquid level	Capacitance change testing	Syringe Pump (SP)	0~20mL/h, ± 0.2mL/h or ± 5% of the reading
Power	500VA	3 electronic scales	Fluid infusion scale (2), waste liquid scale		
		Blood leak	Optical testing		
Heater		Manometer			
Method and range	heated on either side of the plate (35~40°C)	Pressure of plasma separator inlet	-53.33~40kpa, ± 1.33kpa (-400~300mmHg, ± 10mmHg)		
Protection method	temperature sensor, thermal breaker45°C	Venous pressure	-53.33~40kpa, ± 1.33kpa (-400~300mmHg, ± 10mmHg)		
Cut - off valve and Clamper		Pressure of plasma inlet	-53.33~40kpa, ± 1.33kpa (-400~300mmHg, ± 10mmHg)		
Cut - off valve	electromagnetic switch	Pressure of waste plasma outlet	-53.33~40kpa, ± 1.33kpa (-400~300mmHg, ± 10mmHg)		
Clamper	electric drive	TMP	-53.33~40kpa, ± 1.33kpa (-400~300mmHg, ± 10mmHg)		

## Parameter Description

Size	310mm(W)×240mm(D)×430mm(H)	setting range of target volume	1~99999ml
Weight	15kg	blood pump flow rate accuracy	within±5%
Size of Medical Trolley	510mm(W)×430mm(D)×750mm(H)	low range of heparin pump	0-10ml/h
Weight of Medical Trolley	20kg	heparin pump flow rate accuracy	±5% or±0.2ml/h ( take the larger absolute value )
Power supply	AC220V, 50Hz	indication range of pressure before the cartridge	-20~+38kPa(1kPa)
Power	about 200VA	alarm setting range of pressure before the cartridge	-20~+38kPa(1kPa)
Fuse protector	φ 5×20mm, T2AL250VAC	indication range of venous pressure	-18~+40kPa(1kPa)
Electric shock protection grade	Class I Type B	alarm setting range of venous pressure	-18~+40kPa(1kPa)
Applicable tubes	standard tubes with inner diameter of φ 8mm or φ 6mm	temperature setting range of heating medium	36~41℃(0.1℃)
Alarm	air bubble alarm, liquid level alarm, venous pressure (max), venous pressure (min) pressure before the cartridge (max), pressure before the cartridge (min), pump cover open, heparin choke, heparin injection finish, heparin timing finish, preset amount finish, system timing finish, machine hi-temp, environment low-temp, power supply interruption	flow range of blood pump	9~450ml/min(φ 8mm) 6~300ml/min(φ 6mm)