





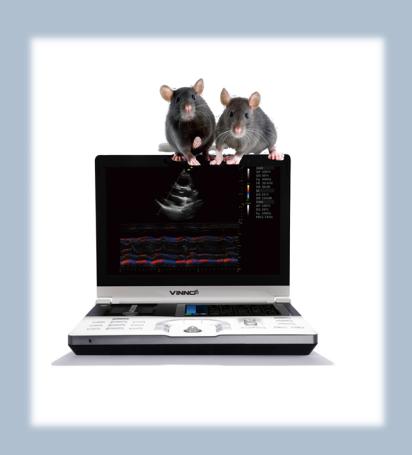








### World-class performance with a thinner and lighter design







### Wide-angle Tilting Capability



High resolution flat-panel display

with continuously adjustable positioning

Wide viewing angle



### Compact Construction



#### Weight: 3.5kg

- ✓ Thinner and beauty
- ✓ Easy to carry by integrated handle

### Probe connector

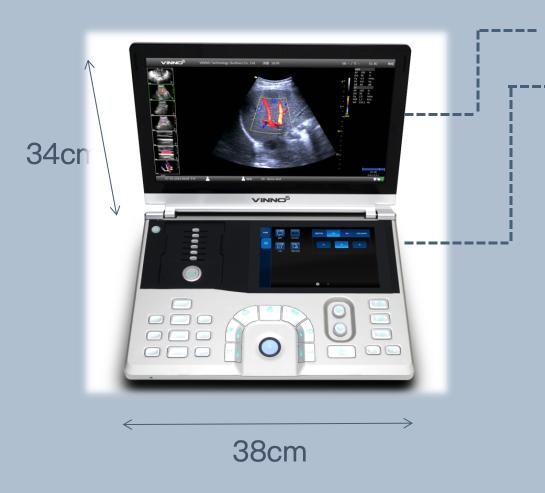
Integrated connector design saves space and adds compatibility across full range of VINNO scanner series

Keyboard:

Touch-screen QWERTY keyboard



### Ergonomic Design



- 15.6 inch high resolution LED display
- 8-inch touch panel
- DICOM 3.0 compatibility
- 2USB ports
- Built-in battery for 1 hour independent operation
- 250GB SSD provides quick boot up and storage
- Supports optional BW or Color printer



Compact, ergonomic design for intuitive workflow



### Portable

◆The portable model can be put into the trolley case and shuttled between the independent laboratories and BSL-3 ones.

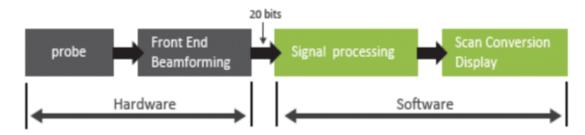


# Innovative RF Ultrasound Platform

Traditional Ultrasound Platform — Image data processing platform



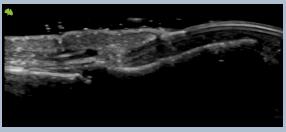
Innovative RF Ultrasound Platform RF signal data processing platform for better resolution and definition



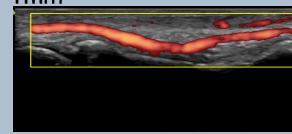
- √ Bigger data to compute for better image quality.
- √ Non-linear demodulation to strong signal.
- √ More accurate and higher step calculation.

- v Processing algorithm based on signal data, not image data.
- √ Flexible algorithm on data processing.

#### fingernail

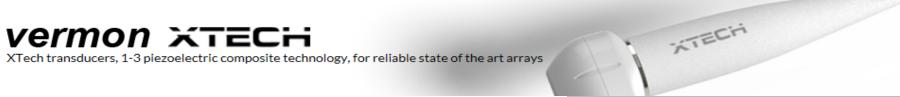


Blood flow with a velocity of within 1mm



### Types of experimental animals







- **♦**Mouse
- **♦**Rat
- ◆Guinea pig
- **◆**Rabbit
- **◆**Canine
- **♦**Feline
- ◆Miniature Pig
- **♦**Pig
- **♦**Ovis
- **◆**Equine
- **♦**Others



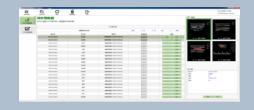
#### **VCloud**

Cloud Database



RF data image transfe

VINNO Intelligent System



Post adjustment, report Real-time streaming



Research report



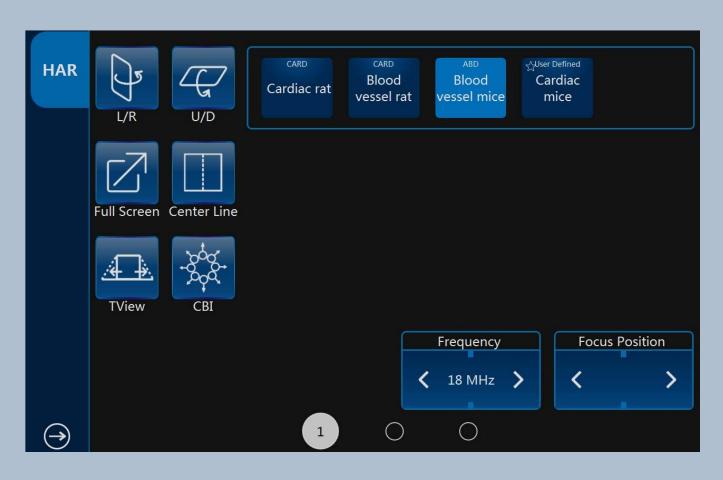


Operation interface





#### New operation mode





Traditional operating keyboard

- ◆ 8 '' touch screen
- built-in animal

measurement packets

- ◆ one click to select data packet
- ◆ to improve the consistency

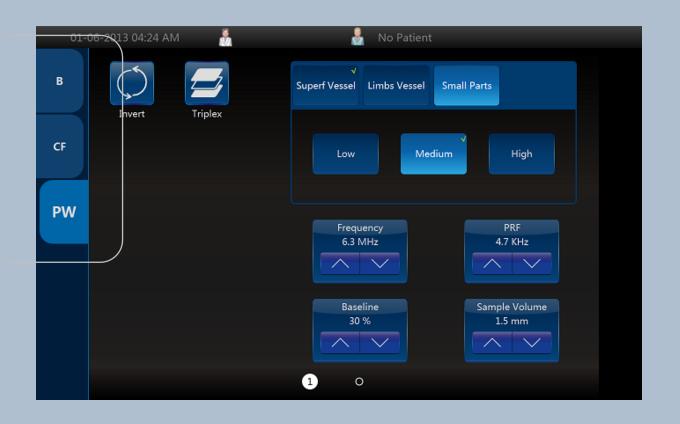
of experimental results



### User Friendly Interface

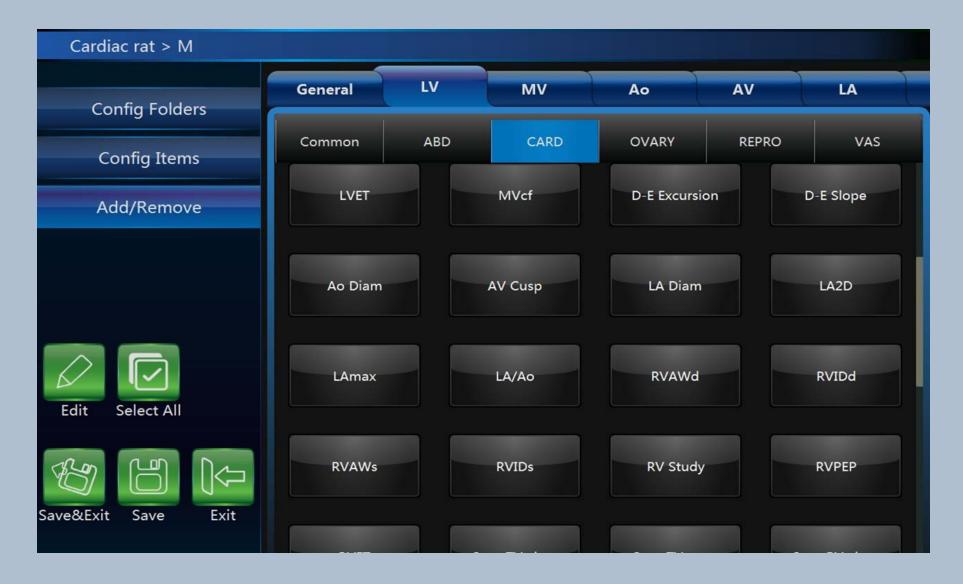
#### Intuitive, configurable touch-screen user interface:

- 2D mode
- CF mode
- M Mode
- Contrast mode
- PW/CW mode
- Color Doppler mode
- Tissue Doppler mode
- ECG
- Elasticity imaging





### Complete functional modules: Cardiac measurement kit





### Measurement parameter

HR

**LVEDV** 

**LVESV** 

SV

CO

CI

LVd Mass

EF

%FS

%IVS

IVSd

LVIDd

LVPWd

IVSs

LVIPs

**LVPWs** 

MW E/A

MV Vel E

MV Vel A







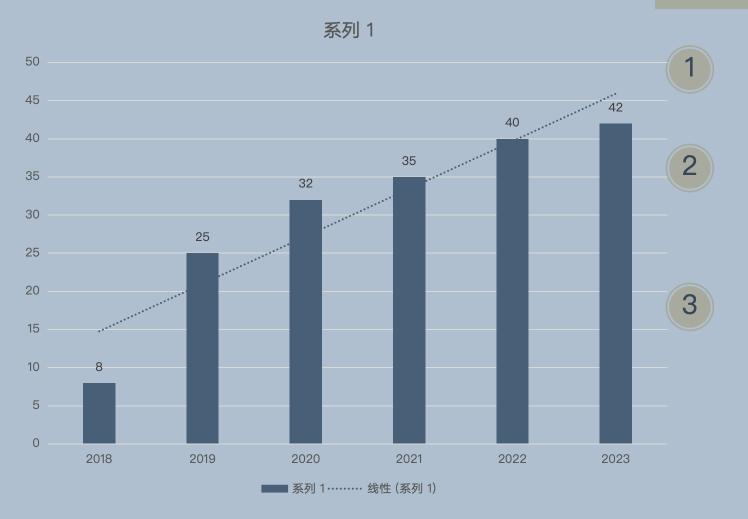
Market Overview





### ... Market Background

#### VINNO sales in the past five years (Unit)

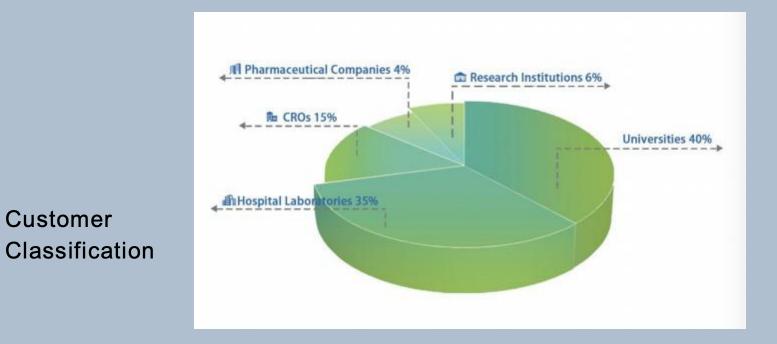


#### Total sales volume:200+

It entered the market late, but the sales increased steadily Y/Y

The growing customer base will stimulate greater market potential. A large customer base validates the stability and availability of the product.

Within 6 years, it catches up the sales volume of the former monopolist



The roportion of customers with overseas Study backgroud

Customer



The Market Occupation of TOP 50 Universities in China



#### Part of Customers







Peking University



Wonkwang University



Johns Hopkins



Zhejiang University



Wuxi Apptech



Novo Nordisk



NHCS



Institute of Cardiovascular Medicine, Wuhan University



University of Gda ń sk



Catholic University of Korea

### **Publications**

#### More than 100 publication

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											pretreatment alleviates doxorubici			型中的PDL-1阻断		瘤
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									circulating exosomes through		cardiotoxicity by upregulating					
											AMPKα2 and activating adaptiv		Ultrasound-mediated microbubbles 通过超声	声介导的微泡空化		
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		Mutagenesis Uncovered 02	Hypertrophy in M		Cancer											
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Autonomous Role

Sarcoplasmic/Endopl Reticulum Calcium ATF Murine Cardiomyocyte N Nrf2/HO-1 Sign

Ultrasound-Targeted Microbubble Destruction Alleviates

超声靶向微泡破坏减轻









### Part of publications



Liu S, Chen X, Bao L, Liu T, Yuan P, Yang X, Qiu X, Gooding JJ, Bai Y, Xiao J, Pu F, Jin Y. Treatment of infarcted heart tissue via the capture and local delivery of circulating exosomes through antibody-conjugated magnetic nanoparticles. Nat Biomed Eng. 2020 Nov;4(11):1063-1075. doi: 10.1038/s41551-020-00637-1. Epub 2020 Nov 6. PMID: 33159193.

Liu H, Liu S, Qiu X, Yang X, Bao L, Pu F, Liu X, Li C, Xuan K, Zhou J, Deng Z, Liu S, Jin Y. Donor MSCs release apoptotic bodies to improve myocardial infarction via autophagy regulation in recipient cells. Autophagy. 2020 Dec;16(12):2140-2155. doi: 10.1080/15548627.2020. 1717128. Epub 2020 Jan 29. PMID: 31959090; PMCID: PMC7751634.

He H, Wang L, Qiao Y, Yang B, Yin D, He M. Epigallocatechin-3-gallate pretreatment alleviates doxorubicin-induced ferroptosis and cardiotoxicity by upregulating AMPKα2 and activating adaptive autophagy. Redox Biol. 2021 Nov 11;48:102185. doi: 10. 1016/j.redox.2021. 102185. Epub ahead of print. PMID: 34775319; PMCID: PMC8600154.

Bao L, Dou G, Tian R, Lv Y, Ding F, Liu S, Zhao R, Zhao L, Zhou J, Weng L, Dong Y, Li B, Liu S, Chen X, Jin Y. Engineered neutrophil apoptotic bodies ameliorate myocardial infarction by promoting macrophage efferocytosis and inflammation resolution. Bioact Mater. 2021 Aug 27;9:183-197. doi: 10.1016/j.bioactmat.2021.08.008. PMID: 34820565; PMCID: PMC8586716.

Ma Y, Kuang Y, Bo W, Liang Q, Zhu W, Cai M, Tian Z. Exercise Training Alleviates Cardiac Fibrosis through Increasing Fibroblast Growth Factor 21 and Regulating TGF-β 1-Smad2/3-MMP2/9 Signaling in Mice with Myocardial Infarction. Int J Mol Sci. 2021 Nov 15;22(22):12341. doi: 10.3390/ijms222212341. PMID: 34830222; PMCID: PMC8623999.

Bo W, Ma Y, Xi Y, Liang Q, Cai M, Tian Z. The Roles of FGF21 and ALCAT1 in Aerobic Exercise-Induced Cardioprotection of Postmyocardial Infarction Mice. Oxid Med Cell Longev. 2021 Nov 5;2021:8996482. doi: 10. 1155/2021/8996482. PMID: 34777697; PMCID: PMC8589520.

Li H, Qin S, Liang Q, Xi Y, Bo W, Cai M, Tian Z. Exercise Training Enhances Myocardial Mitophagy and Improves Cardiac Function via Irisin/FNDC5-PINK1/Parkin Pathway in MI Mice. Biomedicines. 2021 Jun 21;9(6):701. doi: 10.3390/biomedicines9060701. PMID: 34205641; PMCID: PMC8234442.

### Part of publications



Yang H, He Y, Zou P, Hu Y, Li X, Tang L, Zhu Z, Tai S, Tu T, Xiao Y, Chen M, Wu C, Zhou S. Legumain is a predictor of all-cause mortality and potential therapeutic target in acute myocardial infarction. Cell Death Dis. 2020 Nov 26;11(11):1014. doi: 10. 1038/s41419-020-03211-4. PMID: 33243972; PMCID: PMC7691341.

Zhang M, Wang Z, Cheng Q, Wang Z, Lv X, Wang Z, Li N. Circular RNA (circRNA) CDYL Induces Myocardial Regeneration by ceRNA After Myocardial Infarction. Med Sci Monit. 2020 Jun 11;26:e923188. doi: 10. 12659/MSM.923188. PMID: 32522972; PMCID: PMC7304314.

Liu X, Shan X, Chen H, Li Z, Zhao P, Zhang C, Guo W, Xu M and Lu R (2019) Stachydrine Ameliorates Cardiac Fibrosis Through Inhibition of Angiotensin II/Transformation Growth Factor β 1 Fibrogenic Axis. Front. Pharmacol. 10:538. doi: 10.3389/fphar.2019.00

Ren C, Sun K, Zhang Y, Hu Y, Hu B, Zhao J, He Z, Ding R, Wang W and Liang C (2021) Sodium-Glucose CoTransporter-2 Inhibitor Empagliflozin Ameliorates Sunitinib-Induced Cardiac Dysfunction via Regulation of AMPK-mTOR Signaling Pathway-Mediated Autophagy. Front. Pharmacol. 12:664181. doi: 10.3389/fphar.2021.664181

Kim HY, Yoon JJ, Lee HK, Tai AL, Lee YJ, Kim DS, Kang DG, Lee HS. Blackcurrant Improves Diabetic Cardiovascular Dysfunction by Reducing Inflammatory Cytokines in Type 2 Diabetes Mellitus Mice Nutrients. 2021 Nov 22;13(11):4177. doi: 10.3390/nu13114177. PMID: 34836432; PMCID: PMC8618700.

Guo Y, Zhang C, Ye T, Chen X, Liu X, Chen X, Sun Y, Qu C, Liang J, Shi S, Yang B. Pinocembrin ameliorates arrhythmias in rats with chronic ischaemic heart failure. Ann Med. 2021 Dec;53(1):830-840. doi: 10.1080/07853890.2021. 1927168. PMID: 34060948; PMCID: PMC8172224.

Lei W, Li J, Li C, Chen L, Huang F, Xiao D, Zhang J, Zhao J, Li G, Qu T, Zhou H, Liao Y, Chen M. MARCH5 restores endothelial cell function against ischaemic/hypoxia injury via Akt/eNOS pathway. J Cell Mol Med. 2021 Apr;25(7):3182-3193. doi: 10. 1111/jcmm. 16386. Epub 2021 Feb 21. PMID: 33611830; PMCID: PMC8034466.

cite

Zhang X, Zhang Z, Wang P, Han Y, Liu L, Li J, Chen Y, Liu D, Wang J, Tian X, Zhao Q, Yan F. Bawei Chenxiang Wan Ameliorates Cardiac Hypertrophy by Activating AMPK/PPAR-α Signaling Pathway Improving Energy Metabolism. Front Pharmacol. 2021 Jun 3;12:653901. doi: 10.3389/fphar.2021.653901. PMID: 34149410; PMCID: PMC8209424





- 1. Heart Research
- 2. Vascular Research
- 3. Brain Science
- 4. Reproductive Research
- 5. Tumor Research
- 6. Abdominal organs
- 7. Respirology













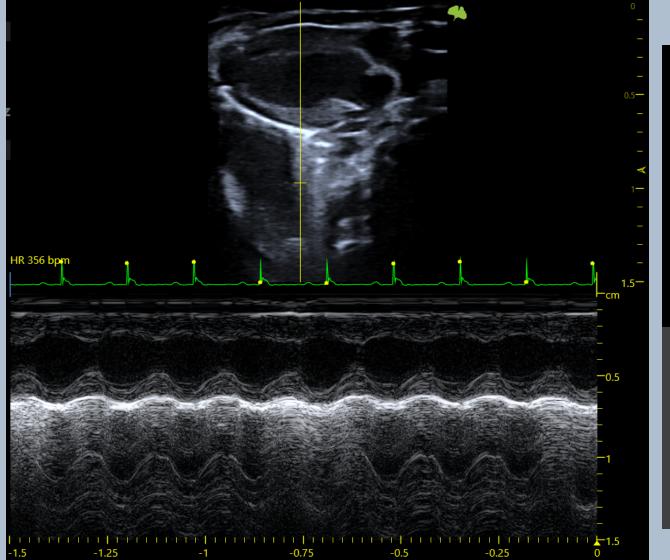


#### 1.Cardiac

Including cardiac morphology, structure of each chamber, coronary artery and great vessel ultrasonic research. Combined with cardiac B-mode and M-mode ultrasound imaging, it can effectively record the changes in the shape and structure of the heart at each movement stage during the cardiac cycle and the measurement of cardiac function in real time. It can measure blood flow velocity, blood flow and other indicators, changes are measured.

It can be applied to basic medical small animal experimental research on cardiovascular diseases, such as myocardial infarction, myocardial hypertrophy, heart failure, hypertension, and various congenital heart diseases using experimental animals such as rats as models.

#### Long axis view

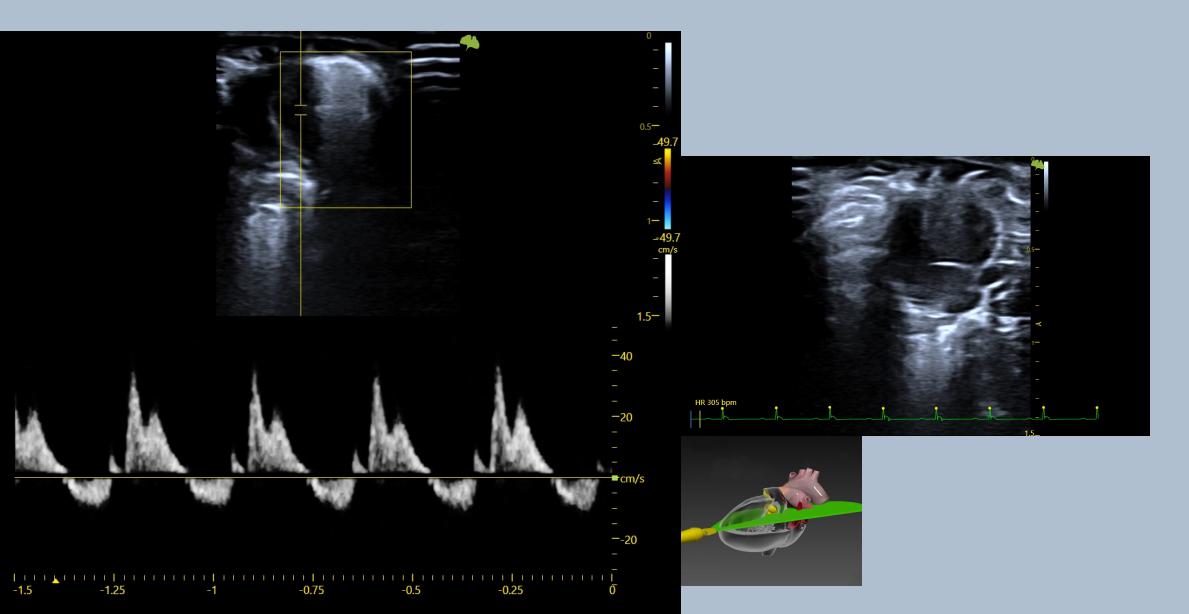




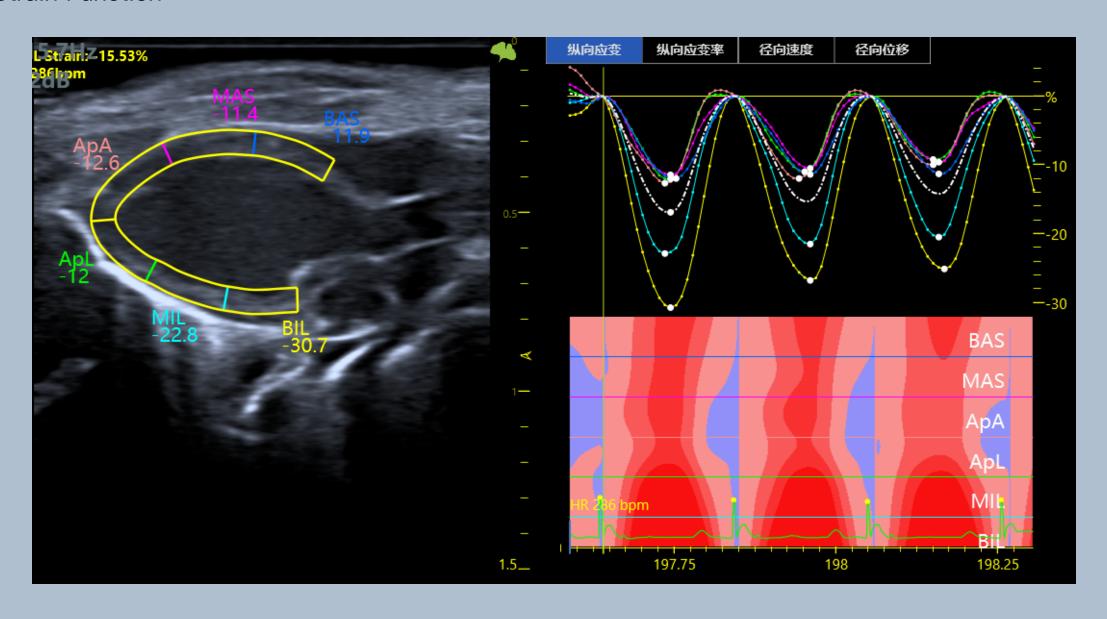
short axis view



Apical four-chamber section, mitral valve blood flow +E/A peak



#### **Strain Function**



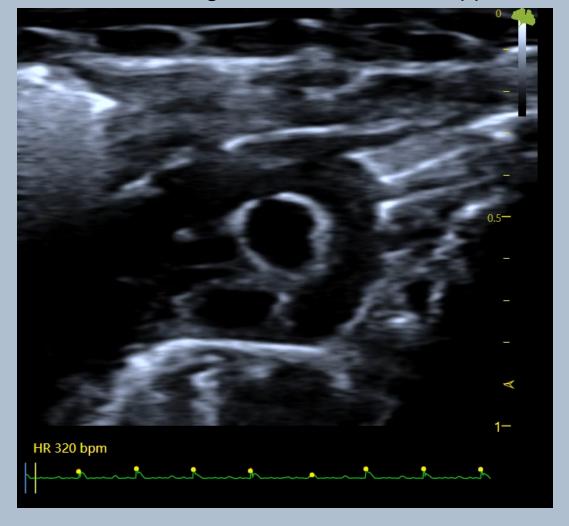
Mouse heart tissue Doppler

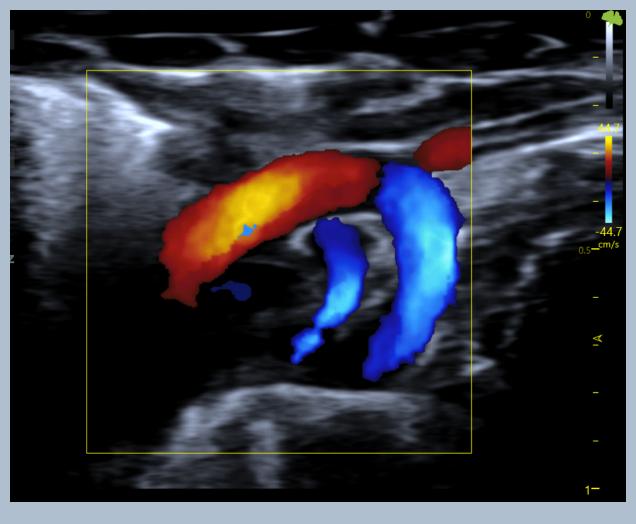


### 2.Angiography

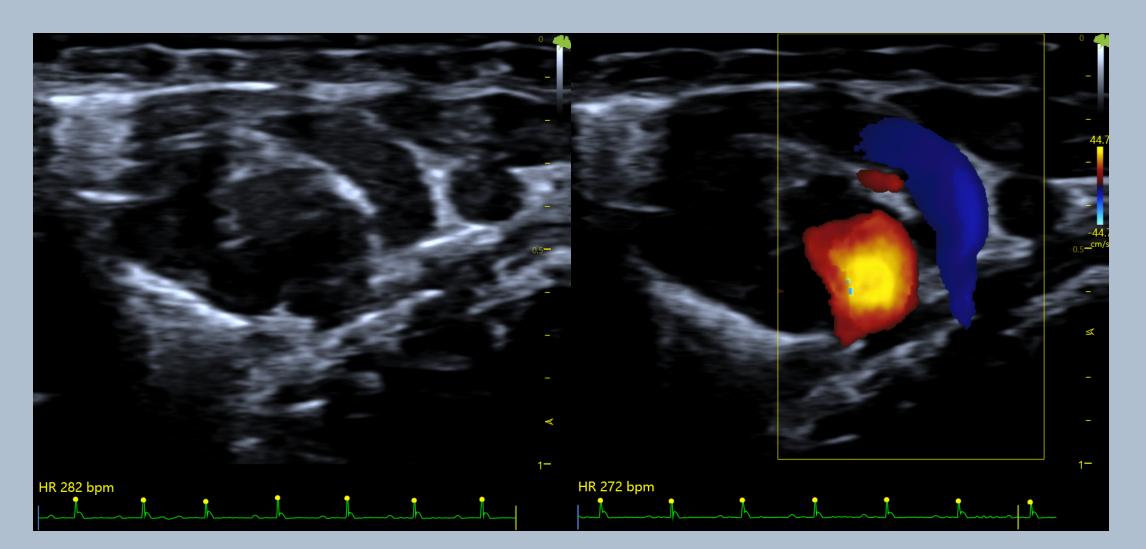
It can detect cross-sectional images of blood vessels, accurately measure the thickness of the arterial wall of experimental animals, the size of the lumen, and measure the intima, media, and adventitia of the vessel wall.

Aortic arch long-axis view + color Doppler blood flow

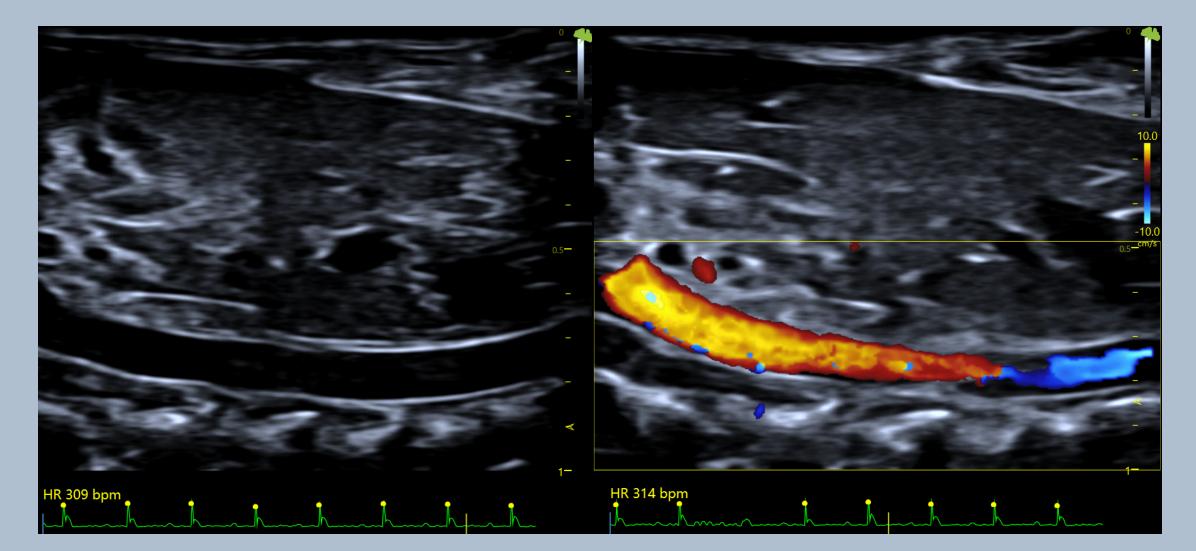




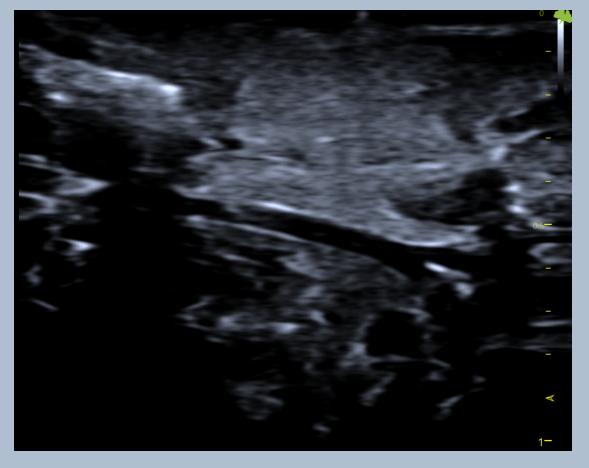
mouse pulmonary artery

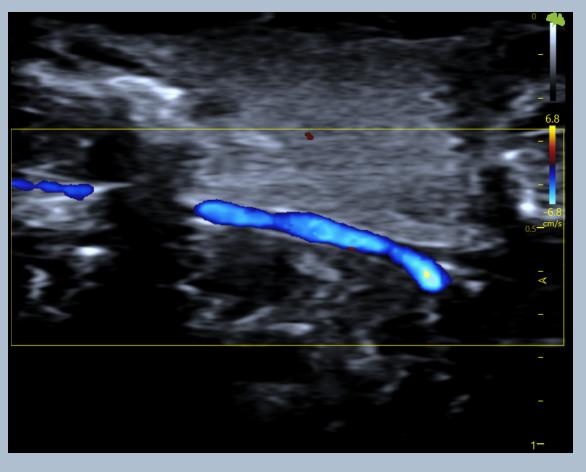


mouse abdominal aorta



Mouse carotid artery

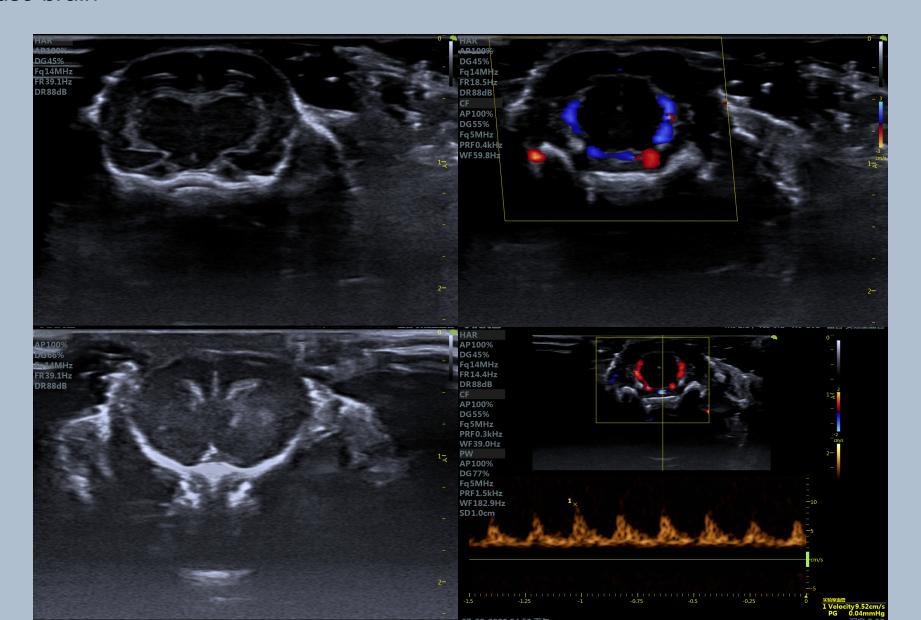




### 3.Brain

For research on brain tissue, blood flow, tumors, etc.

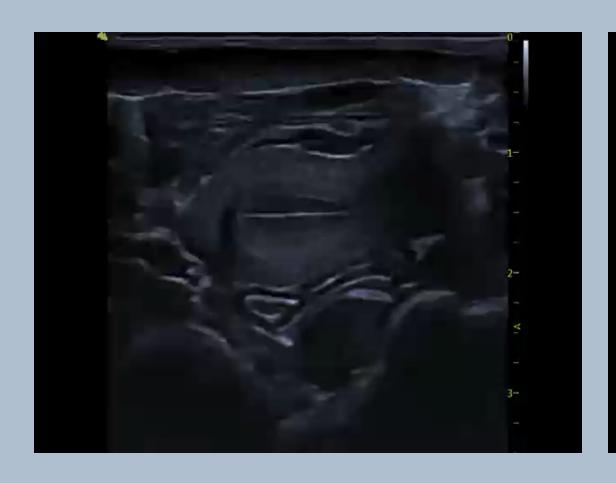
mouse brain

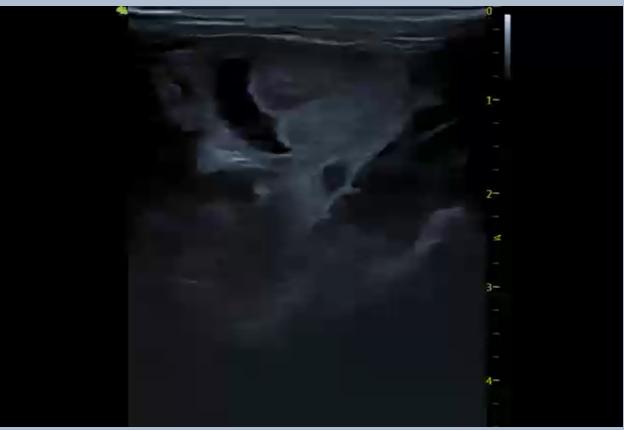


### 4.developmental biology

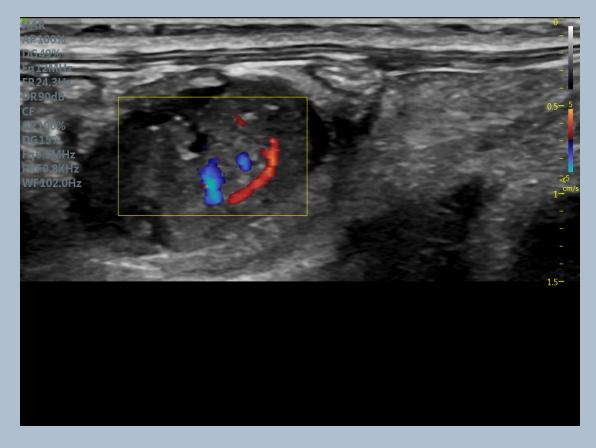
Research on embryonic development of experimental animals, using its builtin functional modules, can realize developmental research from early embryonic development to neonatal to adulthood.

Uterine Imaging



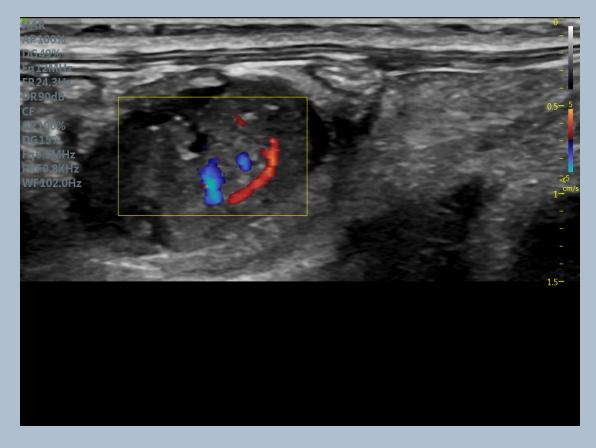


Cardiac Function Evaluation of 15-day-old Fetal mouse



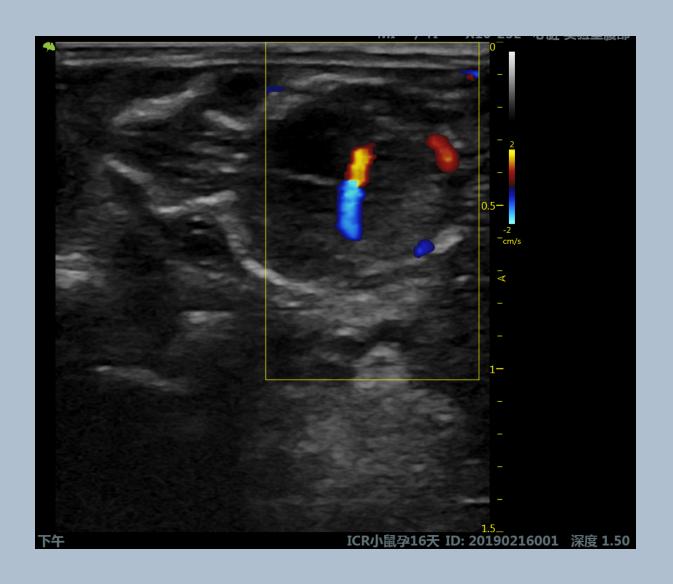


Cardiac Function Evaluation of 15-day-old Fetal mouse

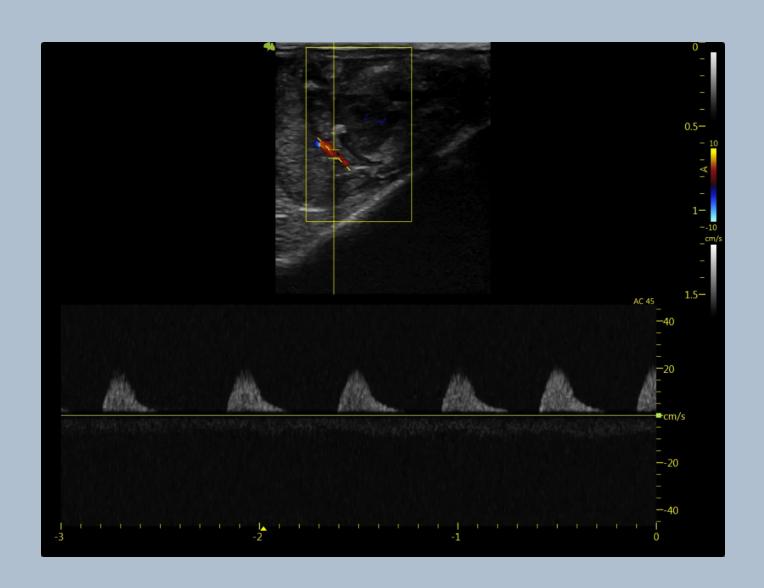




Cerebral blood flow images of fetal mouse



Umbilical Artery Spectrum



#### **Related Articles**



ORIGINAL RESEARCH published: 04 February 2022 doi: 10.3389/fimmu.2022.821542



#### Human-Induced CD49a<sup>+</sup> NK Cells Promote Fetal Growth

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CD49a+ natural killer (NK) cells play a critical role in promoting fetal development and maintaining immune tolerance at the maternal-fetal interface during the early stages of pregnancy. However, given their residency in human tissue, thorough studies and clinical applications are difficult to perform. It is still unclear as to how functional human CD49a+ NK cells can be induced to benefit pregnancy outcomes. In this study, we established three no-feeder cell induction systems to induce human CD49a+ NK cells from umbilical cord blood hematopoietic stem cells (HSCs), bone marrow HSCs, and peripheral blood NK cells in vitro. These induced NK cells (iNKs) from three cell induction systems display high levels of CD49a, CD9, CD39, CD151 expression, low levels of CD16 expression, and no obvious cytotoxic capability. They are phenotypically and functionally similar to decidual NK cells. Furthermore, these iNKs display a high expression of growthpromoting factors and proangiogenic factors and can promote fetal growth and improve uterine artery blood flow in a murine pregnancy model in vivo. This research demonstrates the ability of human-induced CD49a+ NK cells to promote fetal growth via three cell induction systems, which could eventually be used to treat patients experiencing adverse pregnancy outcomes.

Keywords: maternal-fetal interface, decidual tissue-resident NK cells, CD49a, low cytotoxic, fetal growth

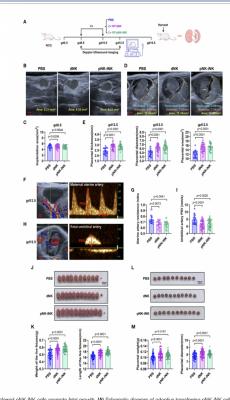


FIGURE 5 | Adoptive transferred pMX-Nix colls promote letal growth, (A) Scheratic diagram of adoptive transferring pMX-Nix cells in pregnancy mice model, n=o pregnancy mice per group. The experiment was performed twice and the results were shown only once. (B, C) Implication areas of pregnancy mice before being transferred cells at gdf.6.5. Bar, 1 mm. Representative ultrasound images from the three groups (B) and statistical calculations (G) are shown. Results are presented as individual values for each implication and mean. (D, E) Piscental measurements at gdf.2.5. Bar, 1 mm. (D) Representative ultrasound image of the single fetus, showing placental thickness, placental diameter, and placental area. (E) Statistical calculation of the measurements is shown. Results are presented as individual values for each placenta and mean. (F-II) Analysis of blood flow velocities at gdf.2.5. Bar, 1 mm. Representative CP (eft) and PW (right) doppler images showing PSV and EDV of UA (P) and UmA (PI). (G) Statistical calculation of UM resistance index (2 experimental repeats were combined). (I) Statistical calculation of UmA peak systolic velocities. (J-MI) The pregnancy outcome of adoptive transferring NK cells in mice. Bar, 10 mm. (J) Perspensitative pictures of the placental correspond to the fetus in U). (M) Statistics were calculated by the weight and length of the live fetus in different groups.
(L) Representative pictures of the placental correspond to the fetus in (J). (M) Statistics were calculated by the weight and diameter of the placenta. Data represent

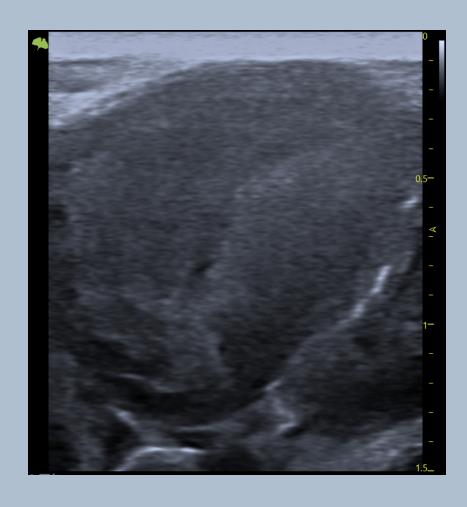
#### **Doppler Ultrasound Imaging**

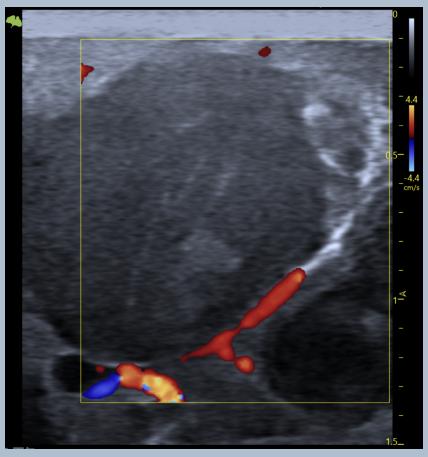
A Vinno 6 performance real-time ultrasound scanner (Vinno Corporation, Suzhou, China) was used for ultrasound measurements. The pregnant mice were anesthetized *via* intraperitoneal injection of 2% pentobarbital sodium and positioned on a warm platform to maintain euthermia. The abdominal hair was removed with a depilatory agent. Pre-warmed ultrasound gel was applied to the depilated abdomen skin, while the bladder was used as a reference point to move the transducer to the abdomen and trace implantations. B-Mode was used to measure implantation areas at gd6.5 and placental conditions (thickness, diameter, and area) at gd12.5 in a 2D grayscale image. CF-Mode was used to visualize blood flow in the maternal uterine artery (UA) and fetal umbilical artery (UmA) at gd12.5. The pulsed wave doppler sample volume was adjusted and subtle positional changes of the transducer were made to obtain the blood flow

### 5.oncology

The tumor tissue can be accurately detected without any markers, and its arbitrary radial distance, area and volume can be measured.

Mouse Abdominal Tumors

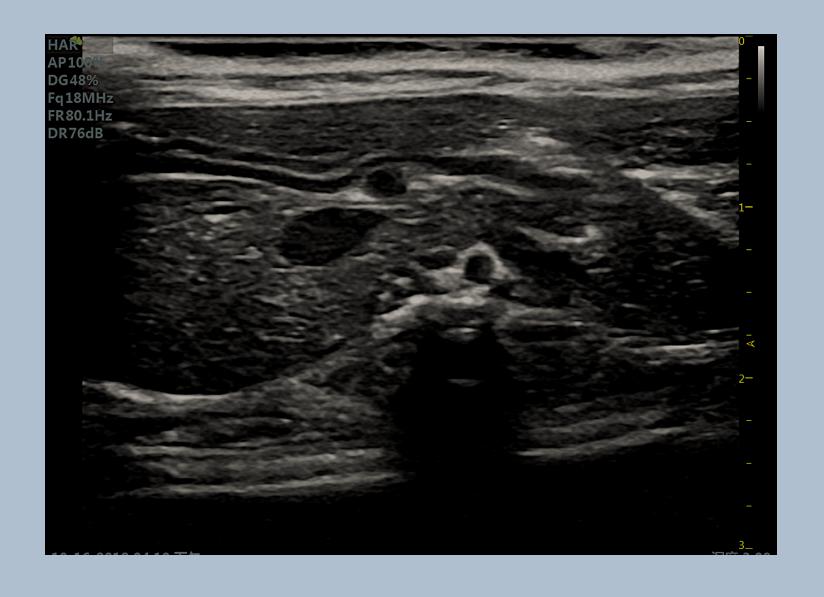




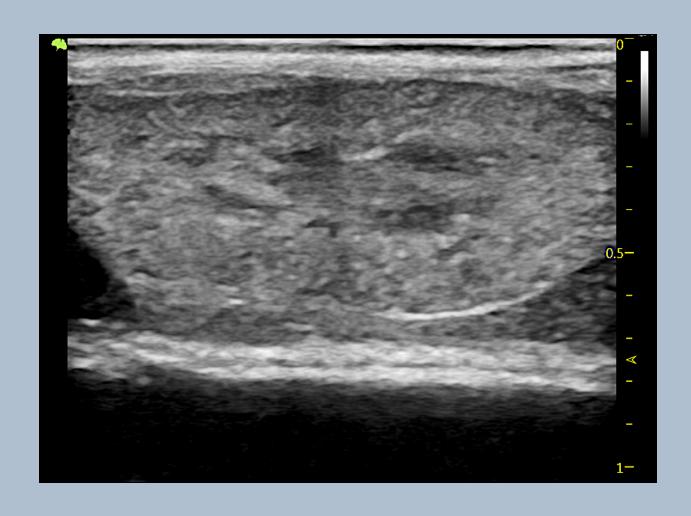
### 6.Abdominal viscera

High-resolution two-dimensional imaging of liver, kidney, intestinal tract and other tissues and organs of various animals such as rats and mice, real-time detection of blood flow and perfusion imaging in vivo.

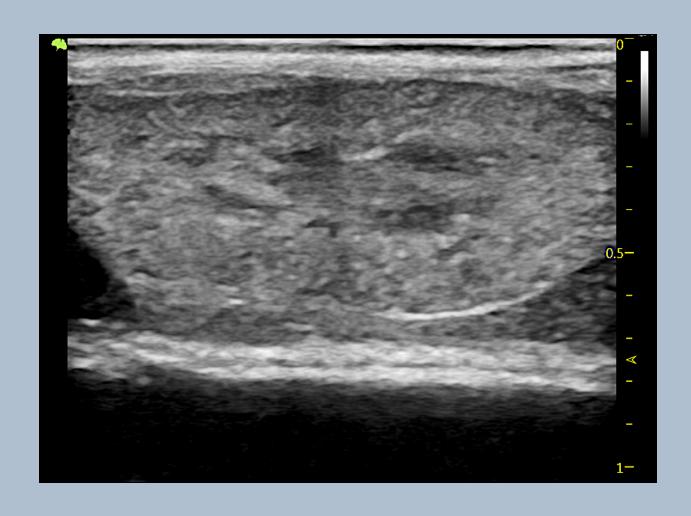
Rat liver



mouse kidney



mouse kidney



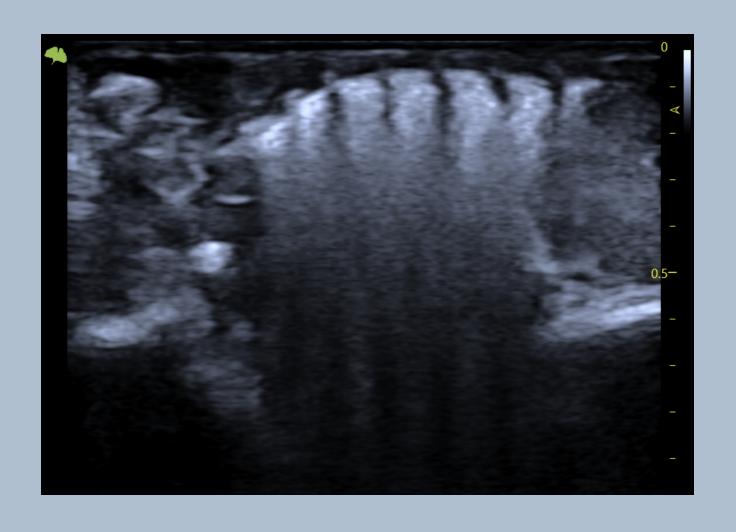
### 7.Respirology

Pulmonary ultrasound can be used for assessment:

breathe hard
 pulmonary edema
 acute respiratory distress syndrome
 COPD/Asthma

6.pneumothorax

Mouse Lung Ultrasound







# Customer Service





### Demonstration and Trial



### Installation Training



### Advcanced Training























### ● 1V1 on–line Training ●





益仁恒业朱岿魁

赴老师说的很对,想要提升超声打图<br/> 还得多了解动物的解剖结构,通过图例 以及自己可以解剖一些废鼠看看血管位 置之类的

中国大学的"流文"。 赵 峰: 充 分了解解剖结构是超声探头寻找目标的...

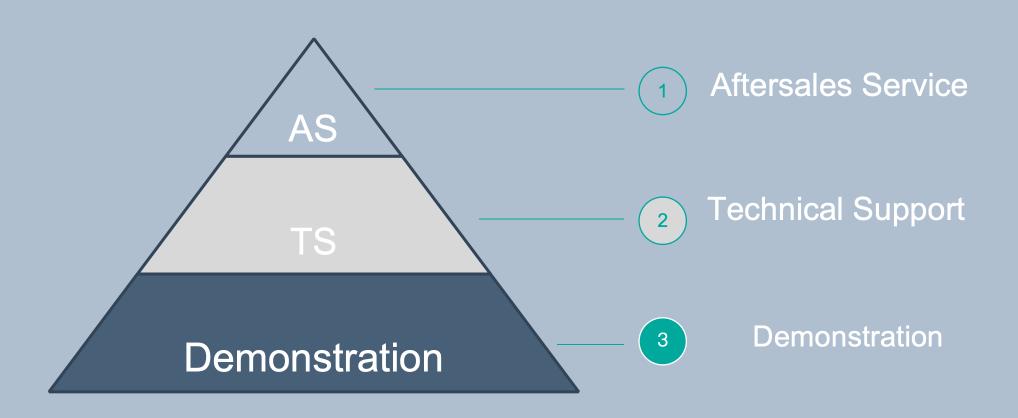
肥胖小鼠由于皮下脂肪太多 导致超声 图像不清晰 不知道这个探头看肥胖小 鼠效果如何?

探头外包pe手套,手套里放耦合剂,然 后放到盲肠上测量即可

说点什么吧~

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