

D-wise introduction



Professional IVD Solution Innovator

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Date 2023.01.17

Content



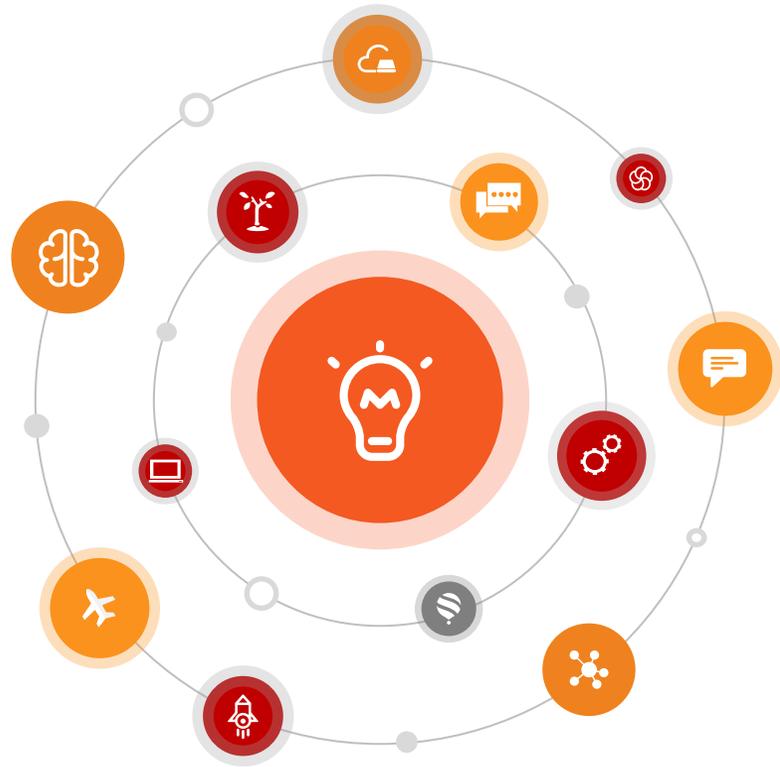
Market analysis of microscopy industry



Comprehensive learning of D-wise



Comparison analysis and marketing strategy



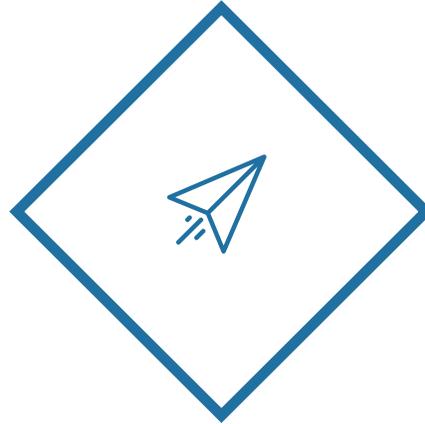
1

Market analysis of microscopy industry

Challenges in VET hospital

Outcome from hard learning is limited

Invest more time and manpower to learn to improve their own professionalism

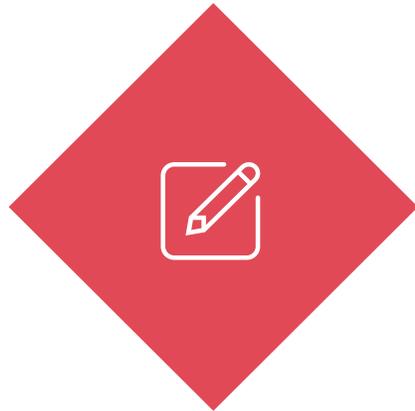


Labor costs are rising year by year

With increasingly high salaries, skilled veterinarians are not easy to find

Professional degree of operator is not enough

Skilled veterinarians are not easy to recruit, and sometimes they are not able to focus on all subjects in microscopy morphology



D-wise+



Fierce competition

The types and prices of business projects are in cool competition, lack of specialty and highlights is main weakness of the VET hospital



Fecal Testing

D-wise can do!

- **Parasite egg**
 - ✓ Coccidium, roundworm, hookworm, tapeworm, trematode, whipworm, trichomonas, etc
 - ✓ AI fully automatic process integrated testing
- **Other tangible components**
 - ✓ Fat drops, starch granules, muscle fibers, plant fibers
 - ✓ AI fully automatic process integrated testing

Urine Testing

D-wise can do!

- *** Tangible component**
 - ✓ * Cell, * tube, * crystal, * pathogenic microorganism
 - ✓ Reports include: physical composition and chemical composition reports
 - ✓ With portable urine dry chemical analyzer (optional), easy operation, comprehensive evaluation (to be determined)
 - ✓ AI fully automatic process integrated testing

Blood Testing

D-wise can do!

- *** Unusual pet blood cell**
 - ✓ Amphibians, reptiles, birds and other non-mammals
 - ✓ Automatic recognition of WBC, RBC, PLT, observe morphological changes and counting
 - ✓ Manual assisted reading: positive samples ref. by base
 - ✓ Clinical professional operation: Smear making SOP graphic and video tutoring
 - ✓ Customized professional report: Built-in template, custom template, build-in info. reminding, quick report
 - ✓ Support multiple items free mode, manual interpretation

Dermatological Testing

- ***Skin scraper**
 - ✓ All kinds of mites: Demodex, scabies, etc
 - ✓ Other parasites
- ***Hair follicle sample**
 - ✓ Judge the pruritus and hair follicle injury of animals
- ***Tape sampling**
 - ✓ Abnormal cells, pathogens (under evaluating)
 - ✓ Support multiple items free mode, manual interpretation

Auditory Meatus Secretions Testing

- ***Ear mite**
 - ✓ Support multiple items free mode, manual interpretation

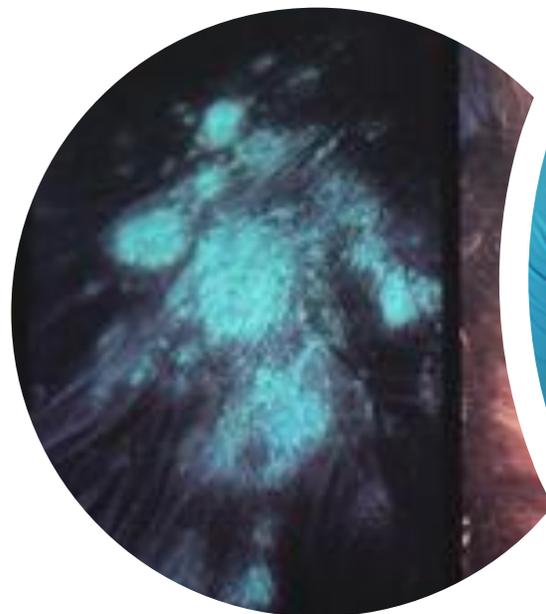
Blood Type Testing

- ***Animal cross matching blood test**
 - ◆ The compatibility of serum types between anemic recipients and donors is tested to prevent transfusion reactions.
 - ✓ Manual assisted reading: control library of positive samples
 - ✓ Clinical professional operation: production SOP graphic and video teaching
 - ✓ Customized professional report: Built-in template, custom template, real-time info. alarm, quick report
 - ✓ Support multiple items free mode, manual interpretation

Every veterinary practice should be equipped with a microscope and all veterinary nurses should become competent with its use. A good microscope is a sound investment for any veterinary practice and **if used regularly, may pay for itself in as little as 3–4 weeks**. Unlike other equipment in the veterinary practice the **microscope is unlikely to become outdated or need upgrading if looked after well**. There are many benefits of having a microscope including:

- Improved case investigation and management
- Enhancement of staff clinical skills
- Immediate results (enabling further investigations/more rapid treatment)
- Increased revenue for the practice.

Table 1. Most common uses of the practice microscope	
Urine sediment examination	The examination of urine sediment for casts, crystals, bacteria and inflammatory cells
Parasitology	Faecal egg count, trichography, skin scrapes, acetate tape impression and coat combings to assess for ectoparasites and eggs
Cytology	The examination of direct/indirect impressions smears, blood smears, acetate tape impression and fine needle aspirates following staining for yeast, fungi, bacteria and cells

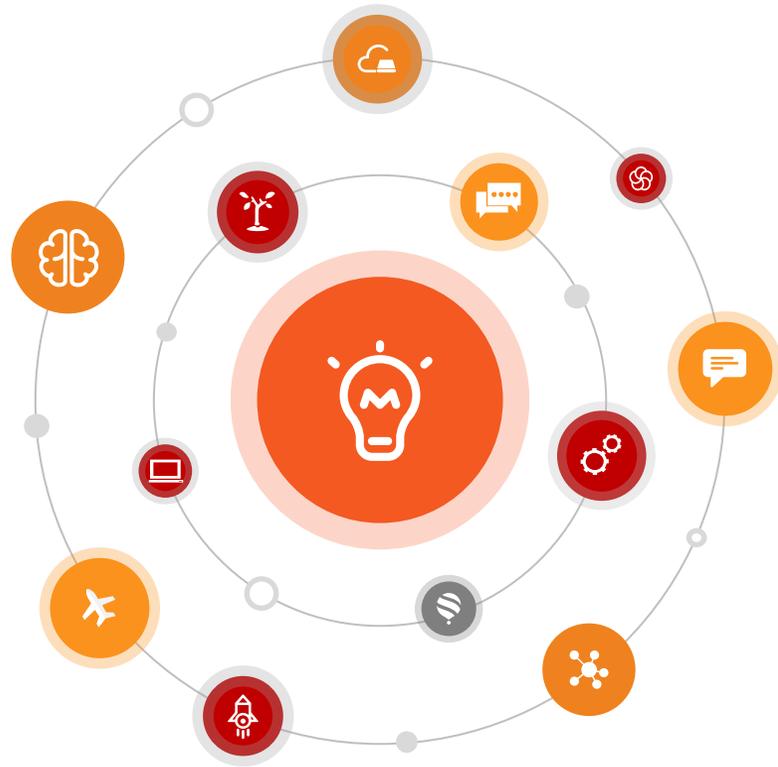


“I think when many people think of a veterinarian, they think of observations and procedures performed at the macroscopic level: listening to a heart beat, suturing a leg wound, administering a vaccine. Indeed, most of the things I do as a large animal vet are done on the large scale. However, **some very important diagnostics require the use of the trusty microscope, a wonderful tool which I think sometimes gets pushed into a dusty corner of the lab bench and scowled at by some.**”

“...However, **one of the most common uses of the microscope in both the small and large animal realms is the fecal float.** A diagnostic tool that takes a small fecal sample, mixes it with a special solution, and then sits the resultant “poo-slurry” in a tube with a microscope coverslip on top, the fecal flotation test determines the presence of gastrointestinal **parasites eggs.**”



Dr. Anna O'Brien



2

Comprehensive learning of D-wise



Basic features



Clinical application



Advantages



Automatic AI Morphology Analyzer for VET

D-wise

Why D-wise could run as to replace manual microscopy?



Collaboration: D-wise displays images on the screen, so it's easy to share information with clients and other colleagues.

Comfort: Days of watching through the eyepieces for hours now gone. Instead, you can sit comfortably upright while viewing the sample on the monitor. This makes your working environment more ergonomic.

Magnify images: The D-wise offers an optical zoom magnification range of 20x to XXX, so you can see your sample up close and capture images better without manual adjusting.

Image storage: Captured images can be stored on your computer's hard drive or storage device. Then users can refer to and examine these images to create a comprehensive report.

Easy to operate: The D-wise is easier to operate than traditional light microscopes. This allows you to get started quickly and easily.



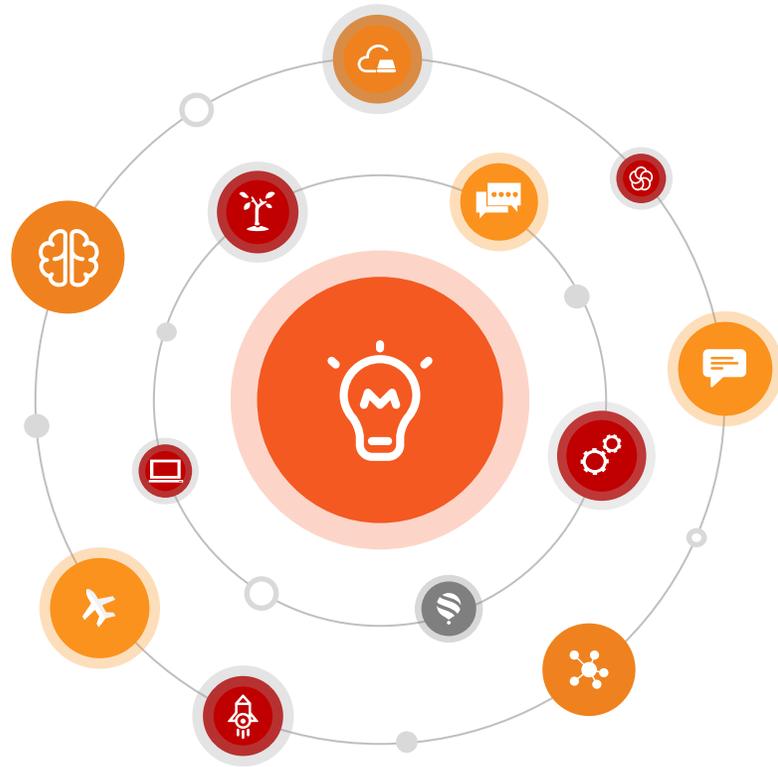
Basic info.



- **Detection mode:** routine stool testing, urine sediment detection, heteropet blood cell detection
- **Output results:** 7 parasite results, 10 picture results, 1 video result
- **Automation function:** one-click testing, no slide production required, the whole process is automatic
- **Printing method:** external computer - software printing
- **Standard Report:** Output standard A4 print report
- **Supported species:** dogs, cats, rabbits, etc
- **Supported languages:** Chinese, English, others (after release, according to market)



Consumables	Intend Use or highlights
Stool Sample collection kit	Stool samples were diluted, eggs were isolated and kept viable for a long time to precipitate excess impurities
Special glass slide	The uniform thickness and fixed area of the slide were ensured, so the standardization of specimen preparation was controlled



2

Comprehensive learning of D-wise



Basic features



Clinical application



Advantages

Internal Parasites

Below are some of the most common internal parasites that your pet may encounter throughout their lifetime. The information in parenthesis are the areas these parasites infect or attack.

- Heartworm (Organs – Heart & Lungs)
- Hookworms (Intestinal)
- Ringworms (Intestinal , or called dermatophytos)
- Roundworms (Intestinal)
- Tapeworms (Intestinal)
- Whipworms (Intestinal)
- Coccidia (Non-Worm Parasite Intestinal)
- Giardia (Non-Worm Parasite Intestinal)
- Spirochetes (Non-Worm Parasite Intestinal)

External Parasites * (not on D-wise now)

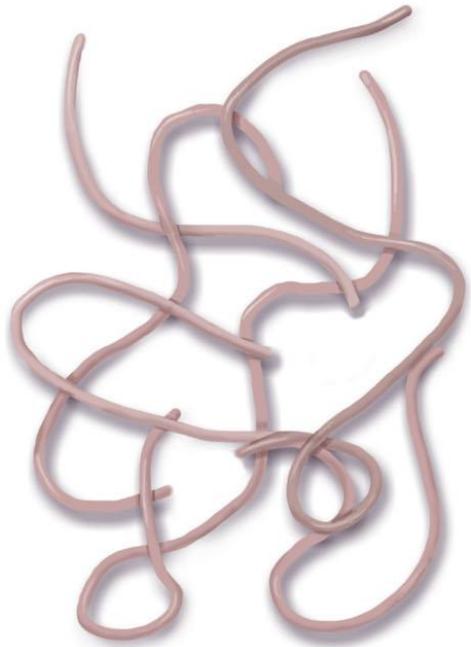
Below are some of the most common external parasites that dog's will encounter. Some of these diseases if left untreated can lead to further health problems.

- Fleas
- Lice
- Mites
- Ticks

Common Types of Feline Intestinal Worms

(Not to Scale)

3-6 inches



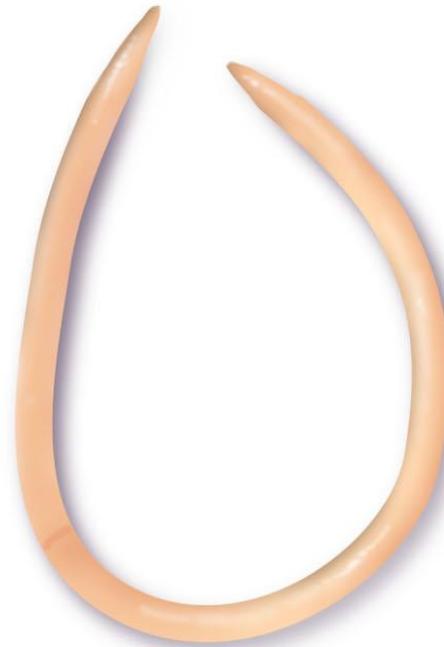
Roundworm

2-3 inches



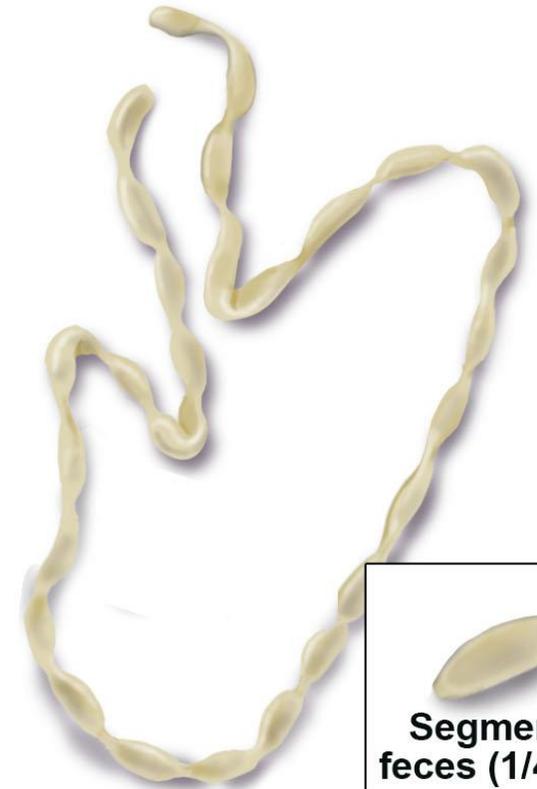
Whipworm

~1/8 inch



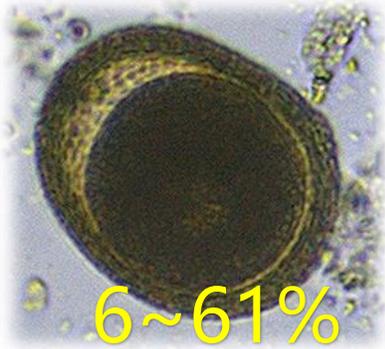
Hookworm

~8 inches

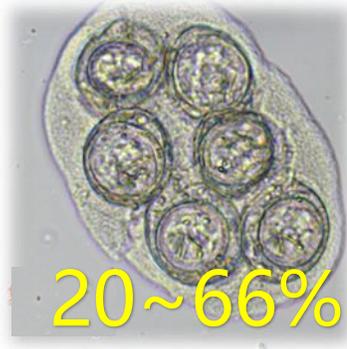


Tapeworm

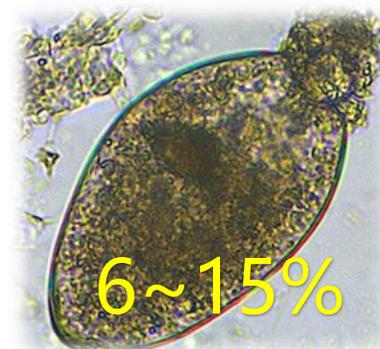
The infection rate of parasites in dogs and cats is as follows (research in China):



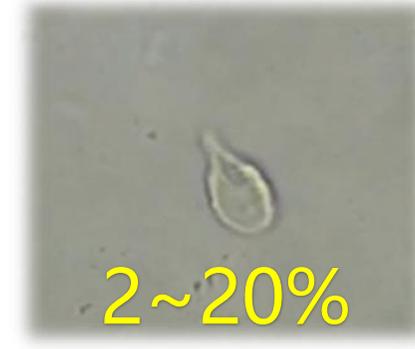
Roundworm (Ascarid)



Tapeworm 1 (Cestode)



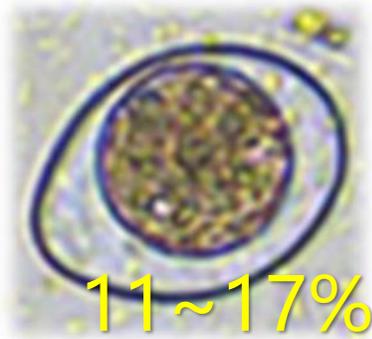
Trematode



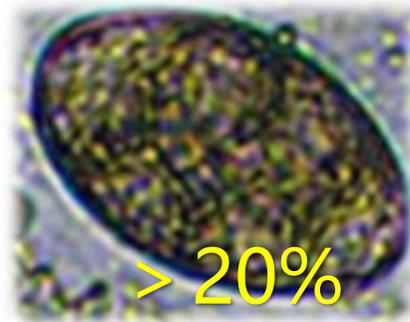
Trichomonad

1: Taenia reticulata

2: Taenia mannii



Coccidium



Tapeworm 2 (Cestode)

At present, the infection rate of parasite in dogs and cats is still relatively high

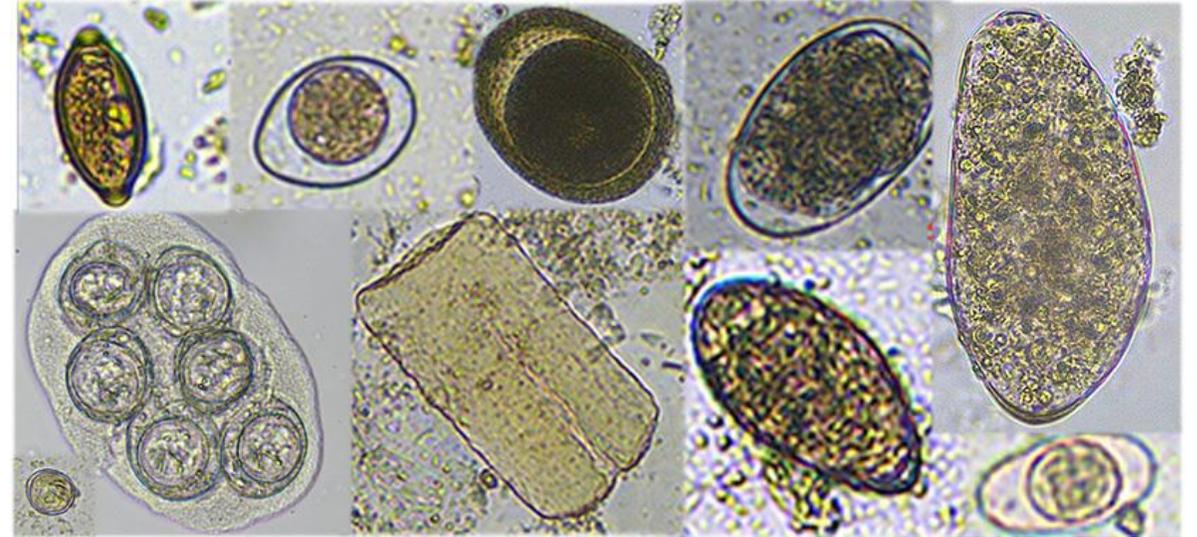
Reasons for the high rate of parasitic infections in the body include:

1. The use of anthelmintic drugs is improper
2. A single anthelmintic ingredient cannot cover all insects well
3. Short growth cycle of parasites in vivo (14-30 days)
4. The parasite survives for a long time in the external environment and cannot be completely removed

According to statistics, manual direct smear method

**Missed detection rate up to
→50%**

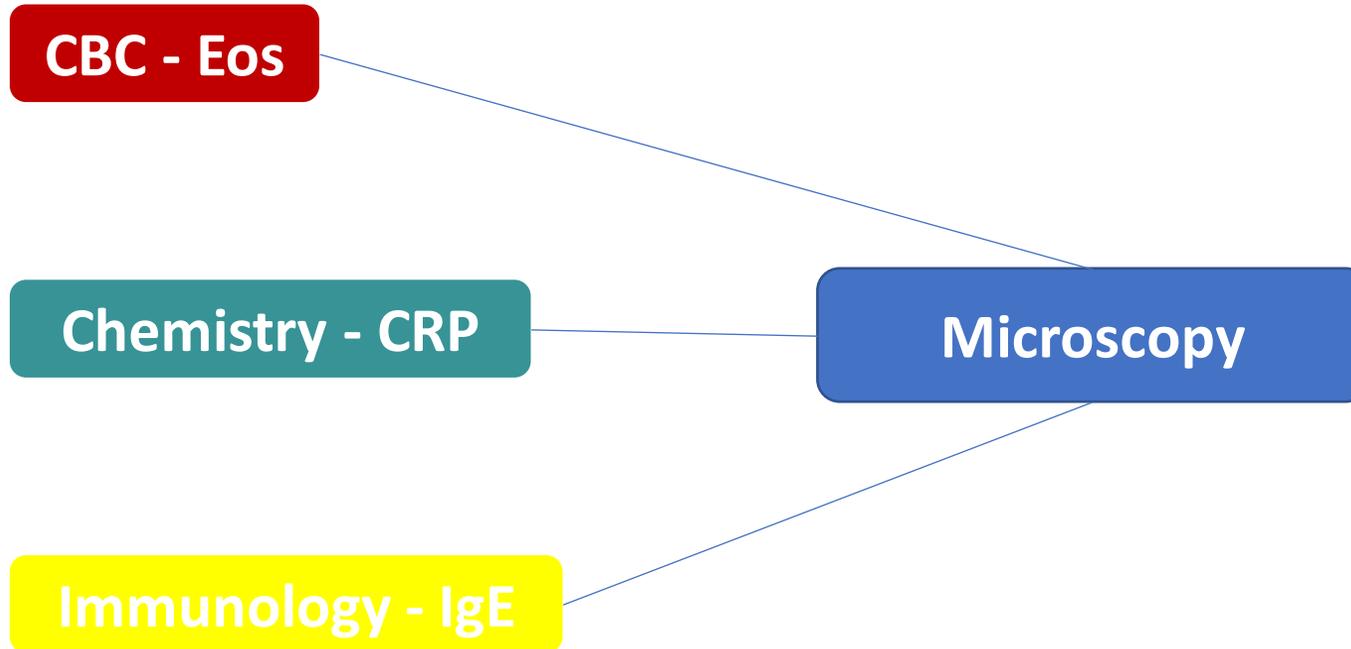
According to the study, for samples infected with hookworm
Direct smear microscopy miss-detection rate **up to 75%**



**Regular stool examinations are key
to preventing parasitic infections**

Twice/month

Microscopy multiple combination in parasitology diagnostic



- Combined with CBC, chemistry and immune antibody, the diagnosis of parasitic infection was further **excluded, suggested and defined**
- **High and low** levels of CRP, Eos and other inflammatory factors reflect the severity of infection, which further supports **the number of parasites** in the microscopy visual field
- Even **intuitive analysis** of WBC (Eos) clear process after parasite infection, help scientific research

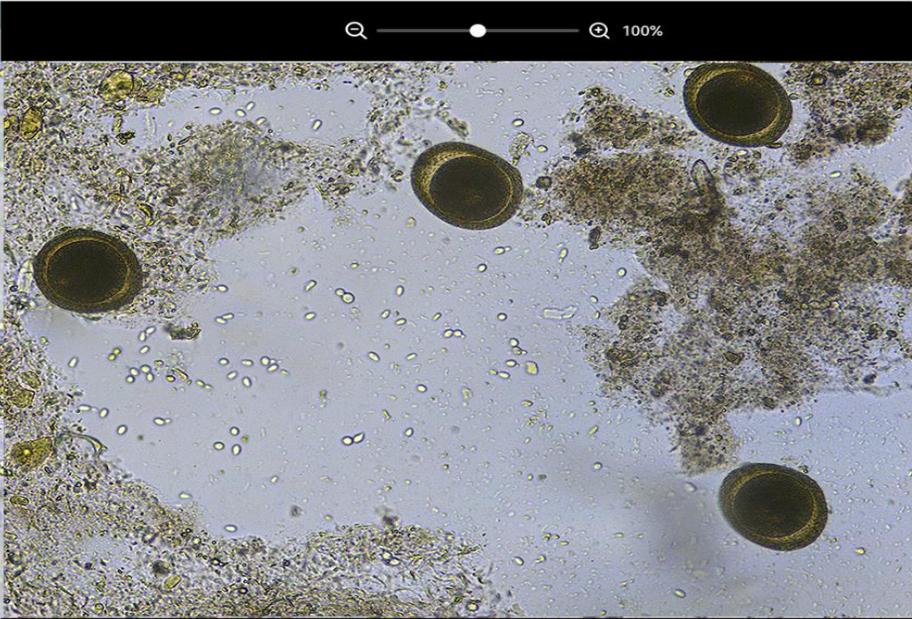
1.Main performance: Chinese rural dog, 8-month old, usually free-range in the village, helping the pet owner herd sheep. The dog eats dog food, has regular immunization and was dewormed once when it was young. But in the last month or so, the dog has cough symptoms. The pet owner fed it cephalixin by himself, and found the dog retched, lose appetite, have occasional symptoms of diarrhea, less stools 2 days ago. Besides, the dog has vomited and found adult worms recently.

2.Blood routine test result: Eosinophils increase.

3.Possible clinical diagnosis: Parasite infection or allergy.

4.Dwise 31 result: Found roundworm eggs.

项目名称	结果
蛔虫	阳性
钩虫	阴性
鞭虫	阴性
绦虫	阴性
球虫	阴性
滴虫	阴性
吸虫	阴性
脂肪滴	+
肌肉纤维	-
植物纤维	+
淀粉颗粒	-



检验结果: 可测结果为阴性/阳性、-/+/+/++/+++

参数	结果	单位	参数	结果	单位
WBC	17.00	10 ⁹ /L	RBC	7.24	10 ¹² /L
Neu%	57.6	%	HGB	162	g/L
Lym%	14.9	%	HCT	45.3	%
Mon%	7.2	%	MCV	62.5	fL
Eos%	↑ 20.0	%	MCH	22.4	pg
Bas%	0.3	%	MCHC	359	g/L
Neu#	9.79	10 ⁹ /L	RDW-CV	14.4	%
Lym#	2.53	10 ⁹ /L	RDW-SD	37.6	fL
Mon#	1.22	10 ⁹ /L	PLT	199	10 ⁹ /L
Eos#	↑ 3.40	10 ⁹ /L	MPV	10.5	fL
Bas#	0.05	10 ⁹ /L	PDW	18.5	fL
			PCT	0.209	%

Eosinophils aggregate on the surface of nematodes



1.Main performance: Golden Retriever, female, 8-month old. Vomiting, diarrhea occasionally bloody, loss of appetite, depressed. Completed first vaccination and dewormed once.

2.Clinical performance: Temperature maintains at 39°C, weighs 15 kg, thin and inactive.

3.Blood routine test Result: Eosinophils increase. CRP: 24mg/L, indicates inflammation.

4.Possible clinical diagnosis: Parasite infection or allergy.

5.Dwise 31 result: Found eggs of spirometra mansoni.

项目名称	结果
蛔虫	阴性
钩虫	阴性
鞭虫	阴性
绦虫	阳性
球虫	阴性
滴虫	阴性
吸虫	阴性
脂肪滴	+
肌肉纤维	-
植物纤维	+
淀粉颗粒	-



检验结果: 可测结果为阴性/阳性, -/+//+//+++;

参数	结果	单位	参数	结果	单位
WBC	15.20	10 ⁹ /L	RBC	6.50	10 ¹² /L
Neu%	62.0	%	HGB	139	g/L
Lym%	15.9	%	HCT	45.0	%
Mon%	7.4	%	MCV	69.2	fL
Eos%	↑ 14.6	%	MCH	21.4	pg
Bas%	0.1	%	MCHC	309	g/L
Neu#	9.42	10 ⁹ /L	RDW-CV	14.4	%
Lym#	2.42	10 ⁹ /L	RDW-SD	37.6	fL
Mon#	1.12	10 ⁹ /L	PLT	221	10 ⁹ /L
Eos#	↑ 2.22	10 ⁹ /L	MPV	10.5	fL
Bas#	0.02	10 ⁹ /L	PDW	18.5	fL
			PCT	0.232	%

1.Main performance: Corgi, male, 3-month old. Vomiting, soft stools occasionally bloody, average appetite, depressed.

2.Clinical performance: The rectal temperature 38.5°C, weighs 0.7 kg, abdominal wall tense, inactive.

CDV(ag): Negative, CPV(ag): Negative, CCV(ag): Negative

3.Blood routine test result: Eosinophils increase and mild anemia. CRP: 15mg/L, indicates mild inflammation.

4.Dwise 31 result: Found trichuris trichura eggs.

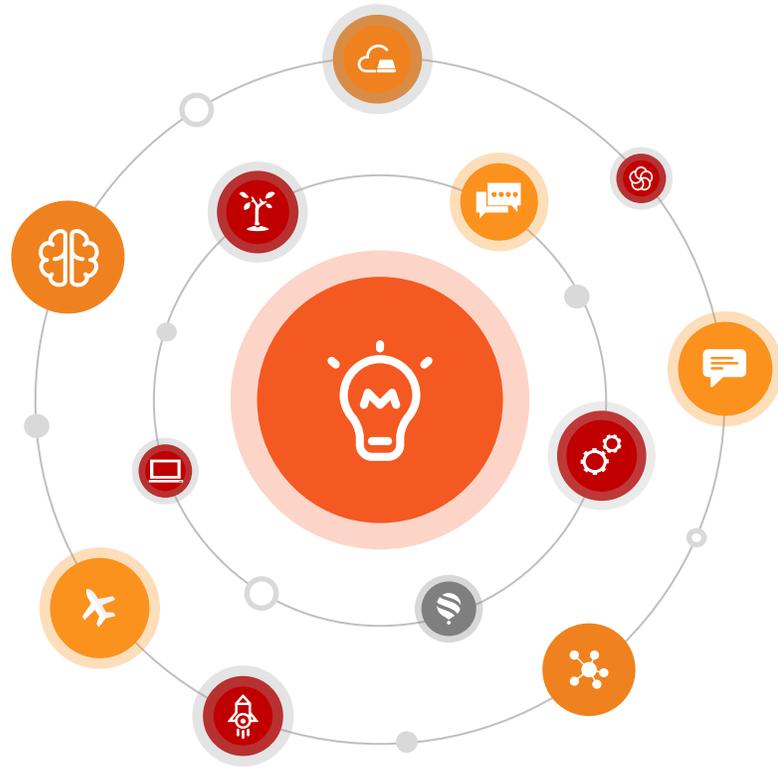
项目名称	结果
蛔虫	阴性
钩虫	阴性
鞭虫	阳性
球虫	阴性
滴虫	阴性
吸虫	阴性
脂肪滴	+
肌肉纤维	-
植物纤维	+
淀粉颗粒	-



检验结果: 可测结果为阴性/阳性、-/+/++/+++

样本编号	2	模式	WB-CBC+		
动物名字					
动物类型	狗				
检验时间	2022/08/01 19:17:10				

参数	结果	单位	参数	结果	单位
WBC	11.00	10 ⁹ /L	RBC	↓ 4.80	10 ¹² /L
Neu%	52.4	%	HGB	113	g/L
Lym%	18.6	%	HCT	↓ 31.0	%
Mon%	10.1	%	MCV	64.6	fL
Eos%	↑ 18.8	%	MCH	23.5	pg
Bas%	0.1	%	MCHC	365	g/L
Neu#	5.76	10 ⁹ /L	RDW-CV	14.4	%
Lym#	2.05	10 ⁹ /L	RDW-SD	37.6	fL
Mon#	1.11	10 ⁹ /L	PLT	199	10 ⁹ /L
Eos#	↑ 2.07	10 ⁹ /L	MPV	10.5	fL
Bas#	0.01	10 ⁹ /L	PDW	18.5	fL
			PCT	0.209	%



2

Comprehensive learning of D-wise



Basic features



Clinical application



Advantages

Compared with manual microscopy, AI saves 3 steps of manpower, and 2 device at least.

- Specialization
- automation
- Easy and fast
- High detection rate
- Safety and hygiene
- Accurate and clear reporting

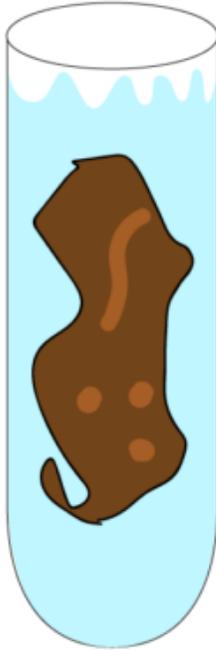


- Low detection rate
- Cumbersome operation
- Unbearable stench
- Careful sample handling
- Indecipherable sometimes
- No clear and definite report

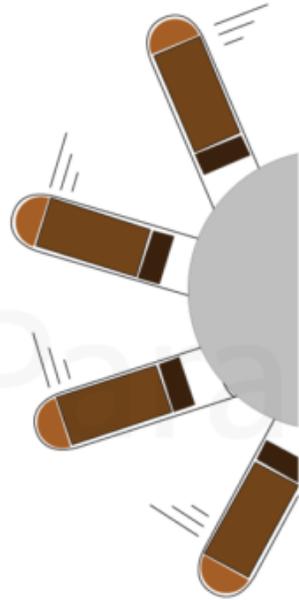
Fastest TAT (Turnaround time) it could be!

Ova Parasite Stool Test

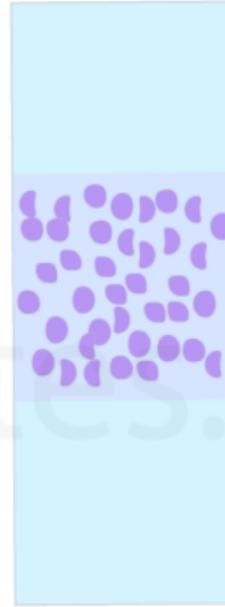
1. Collect stool sample.



2. Centrifuge separates parasites and ova.



3. Sample is added to slide with contrast dye



4. Technician then looks at sample under a microscope. The technician is looking for parasite eggs (ova) and full sized parasites.



Manpower: Collection – Preparation – Smear slide - Visual identification – Recheck and report



Device: **Fume hood - Centrifuge machine** - Multifunctional microscope – PC, printer



■ Instrument features

- Fully closed environment
- Automation
- Normalize pre-processing operations

Convenient
and quick

AI support

Informative
by Pictures.

■ Inspection report

- Image-Illustrated report templates
- Support result query review for conditions
- Record-traceable reports

■ Intelligent detection

- Intelligent control replaces human hands
- Machine vision replaces the human eye
- AI system replaces the human brain
- Automatic learning upgrades the future

■ Instrument features

- Fully closed management

During the inspection process, the sample does not come into contact with the operator; Reduce operator discomfort before proceeding; Ensure safety and hygiene



Sample contamination
problem

Laboratory
environment



Discomfort caused by
bad smell

Physical
discomfort



Risk of zoonotic
diseases

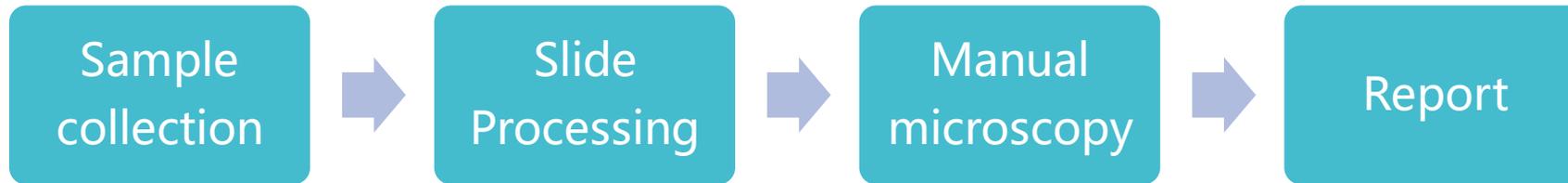
Disease

■ Instrument features

- Automation

One-button start, fully automatic detection

Traditional

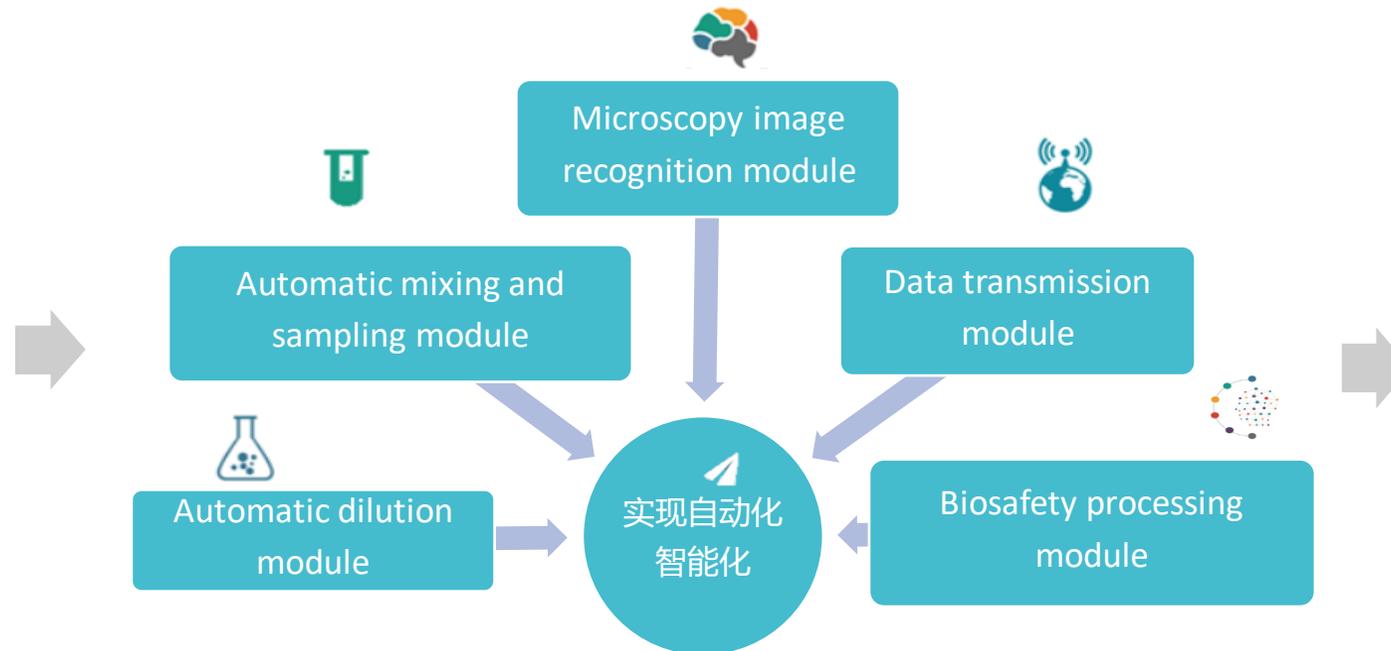


Tough process of testing



Troublesome

Sample collection with special box



D-wise

■ Instrument features

- Normalize pre-processing operations

Normalize the sample preparation method to avoid sub-mean error

Differentiated operational impact for each person:

Sample preparation and production irregularities;

Empirical issue in microscopy examination;

Time issue of no uniform standard.



Uniform
normative
procedures

Standardization



Uniform
normative
time

Standardization



Uniform
normative
results

Standardization

■ Intelligent detection

- Machine vision replaces the human eye

Obtaining clear images of various types of tangible components in the sample frees the eyes of inspectors and unifies the level of testing.

- AI systems replace the human brain
To improve the level of laboratory detection, the deep learning organic sub-recognition algorithm has higher accuracy than the traditional human eye image recognition.

- Automatic learning upgrades future
The intelligent system is upgraded according to the accumulation of large database content, and at the same time drives the common growth of inspectors

Can't find?

Low detection rate due to low amount in early stage



can't recognize?

Not all the eggs could be distinguished by one inspector



Limited memory?

Limited human brain capacity including memory



■ Inspection report

➤ Image-Illustrated report

templates

➤ Support result query review

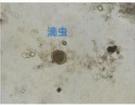
for conditions

➤ Record-traceable reports

宠物医院
全自动AI智能检验报告单

姓名: Patient Name 主人姓名: 刘昊然 动物类型: 狗 样本编号: 2021110912335
 年龄: 2岁 样本类型: 粪便 粪便状态: 稀 病历号: 202111091233
 性别: 雄 检验时间: 2021-11-09 10:59:59

项目名称	结果	参考范围
滴虫	阳性	阴性
球虫	阳性	阴性
蛔虫	阴性	阴性
绦虫	阳性	阴性
钩虫	阴性	阴性
鞭虫	阴性	阴性
吸虫	阴性	阴性
脂肪滴	++++	
肌肉纤维	++	





临床诊断: 思想建设就是就是开始看简单介绍我成交价纯净水奇偶时候思想建设就是就是开始看简单介绍我成交价纯净水奇偶时候。

兽医: 伍无 检验医生: 王房子 审核医生: 五十四
 打印时间: 2021-11-09 12:00:00备注:
 【本次实验报告仅对本次标本负责, 如有疑问, 请于24小时内提出咨询】

报告结果
重测&历史 2

项目名称	结果
蛔虫	阳性
钩虫	阴性
鞭虫	阴性
绦虫	阴性
球虫	阳性
滴虫	阴性
吸虫	阴性

滴虫视频 1:30

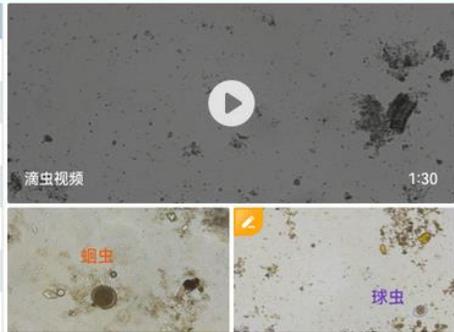


图1



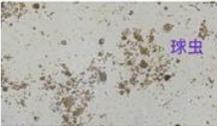
蛔虫



球虫

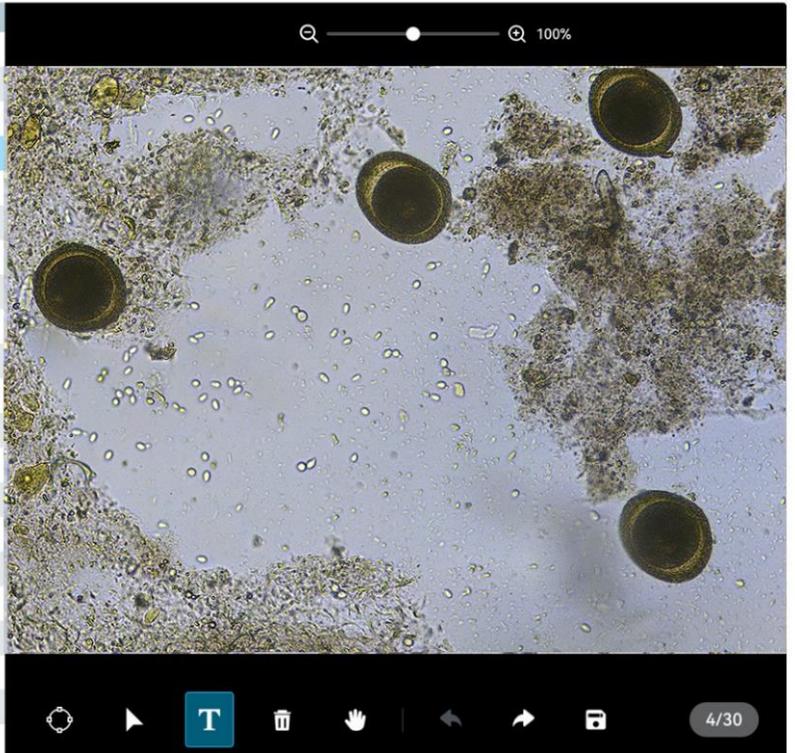


球虫



查看大图

项目名称	结果
蛔虫	阳性
钩虫	阴性
鞭虫	阴性
绦虫	阴性
球虫	阴性
滴虫	阴性
吸虫	阴性
脂肪滴	+
肌肉纤维	-
植物纤维	+
淀粉颗粒	-



检验结果: 可测结果为阴性/阳性、-/+/**/+/**/



3

Marketing strategy



*AI Creates New
Future for Animal
Health Care*



Let the **non-standard morphological diagnosis**,
inefficient individual learning,
and **difficulties in industry sharing** become a history



User analysis

local environment related to Pets parasite

In contrast, **Africa, South Asia, Southeast Asia, and South America** are more driven by **agriculture and animal husbandry**, where people live closer to the natural environment and **pets are more susceptible to parasites**. In addition, these places are in tropical or sub-tropical climates and more active for parasites and microbes reproduction



Daily samples and price for manual microscopy

The daily parasitic cases in pet hospitals vary greatly in different countries and regions, and the price and charge of manual microscopic examination are also closely related to labor costs. For example, **Europe and the United States and Southeast Asia** belong to two completely different market environments

The relationship between pet owners and their animals

In Europe, North, **the pet adopting rate is as high as 80-90%**, and even the probability of a family raising more than two is higher than 50%. In addition, these developed countries and regions **pay more attention to pet health and are relatively more able to take care of all aspects of pets**



THANKS

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