

Automated blood sampler in rats:

a better way to collect serial blood samples for studies in pharmacokinetics, drug metabolism and toxicology



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Serial blood sampling from rats

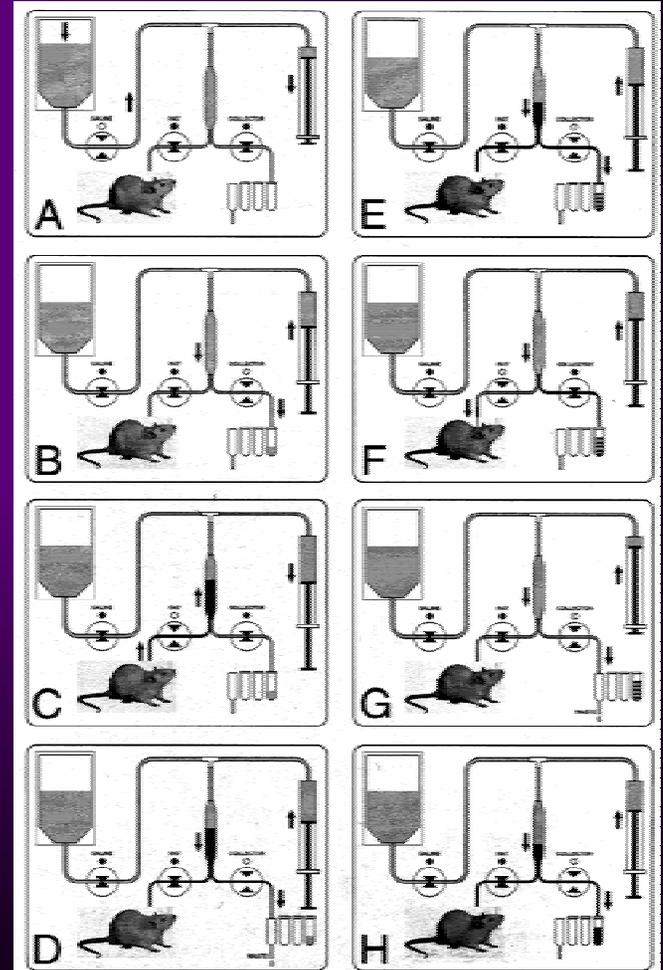
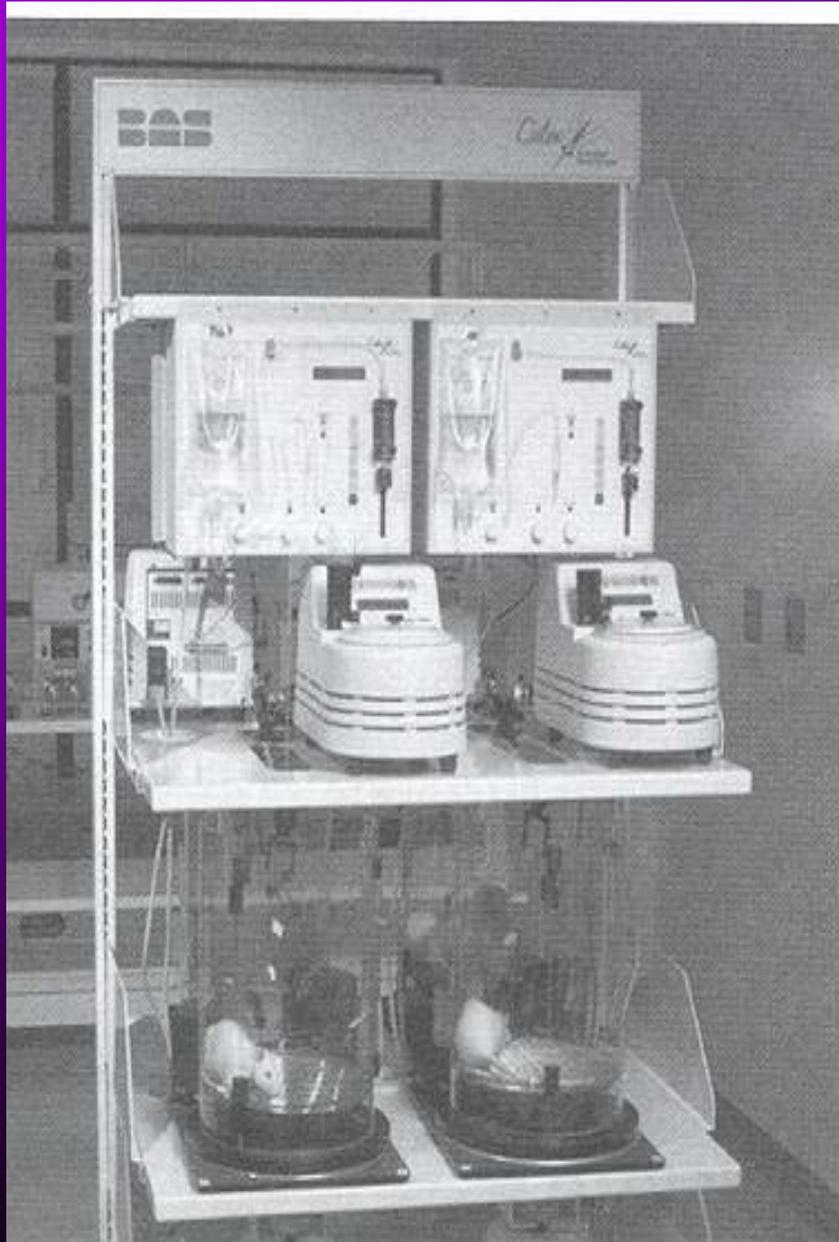
Old methods:

- 1) Tail and Retro-orbital bleeding
- 2) Sample from individual animal
- 3) population PK and TK
- 4) Micro-dialysis *in vivo*

New method

Culex Automated blood sampler
(Culex ABS)

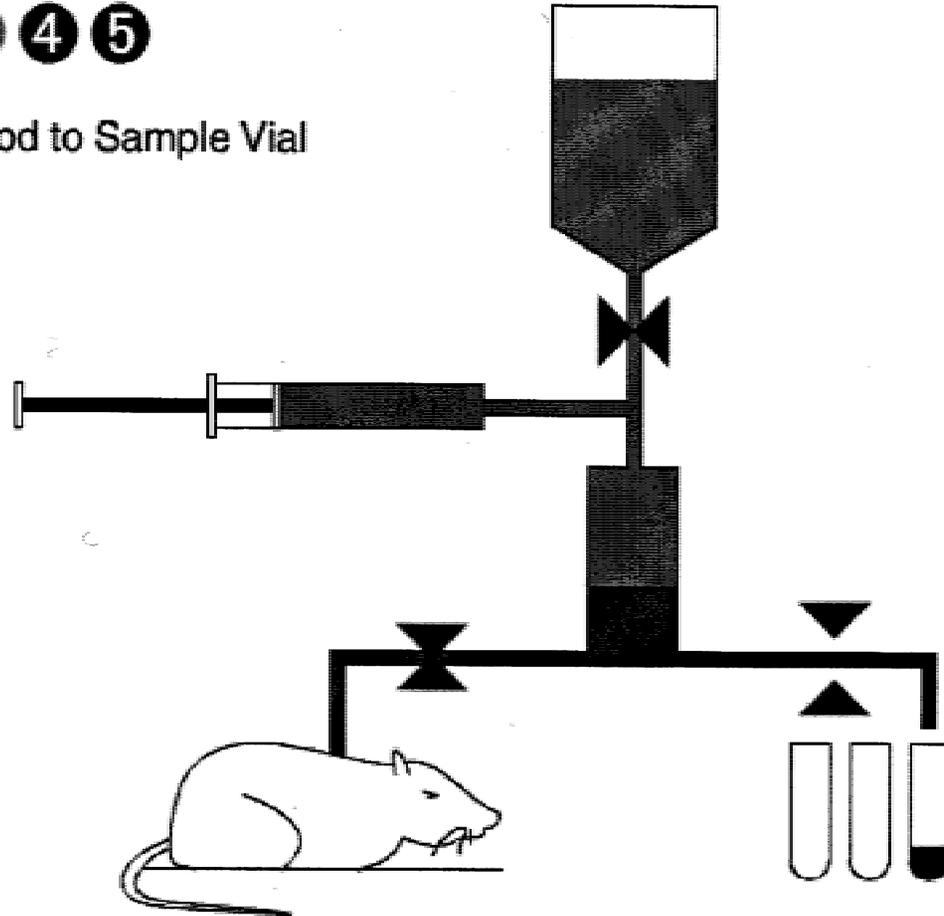
Clues-ABS



Sampling procedures

1 2 3 4 5

Deliver Blood to Sample Vial



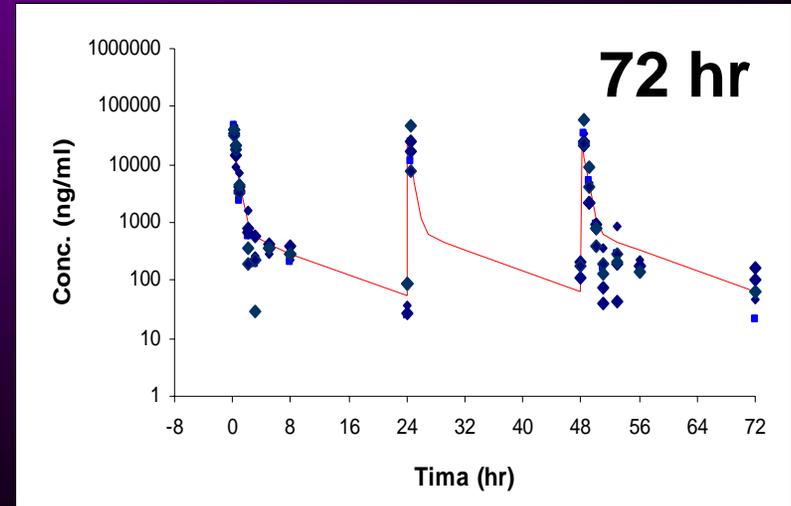
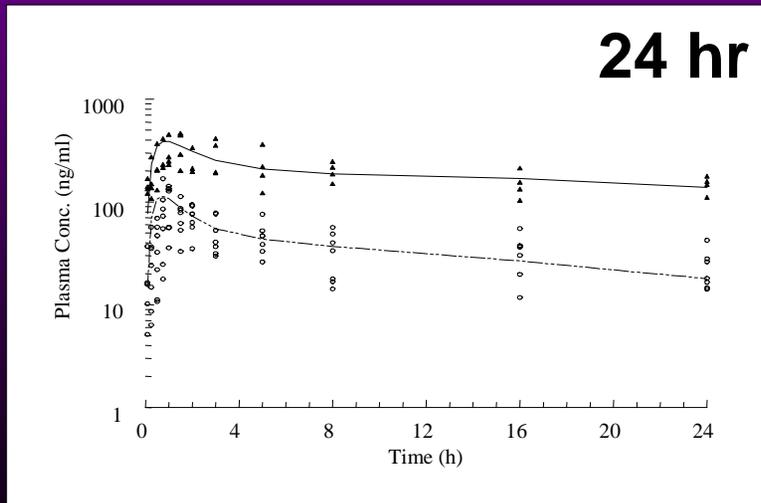
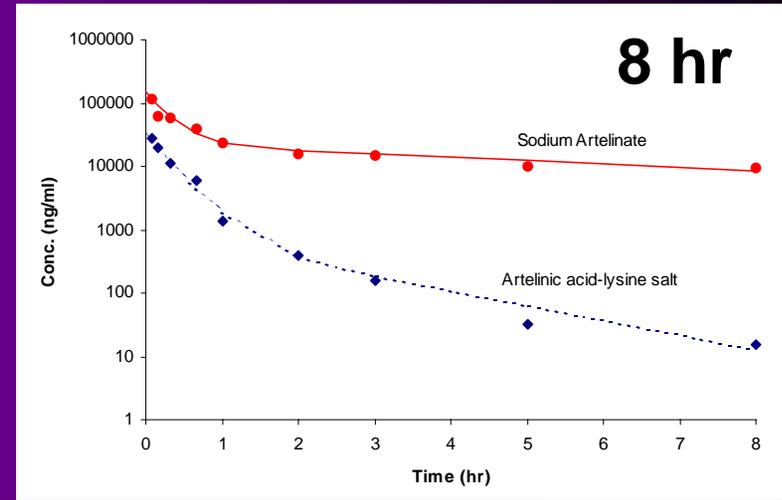
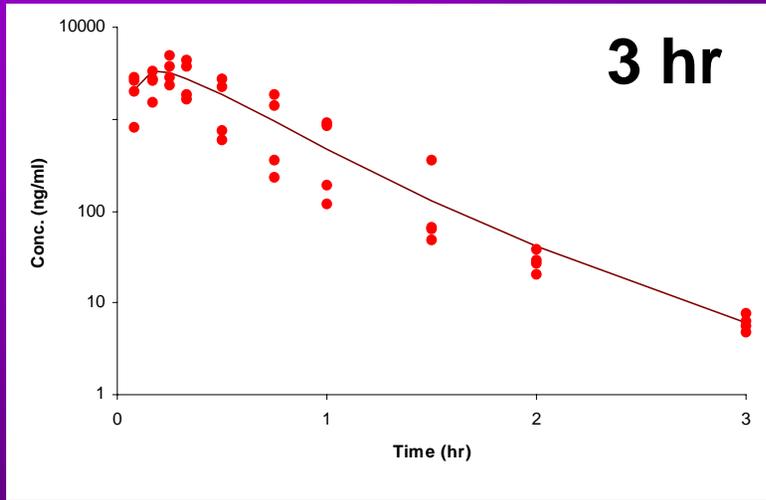
Methods

- Catheter could be inserted into the jugular and femoral veins via surgery.
- Cathetered animals could be ordered from Charles River Co.
- Jugular catheter used for collecting blood and femoral catheter for i.v. injection.
- 20-250 μl of blood can be collected at each time (250 μl is maximum volume) and keep at cooling condition (3°C)
- Animals need to recovery for at least one day after surgery prior to dosing.
- Urine and feces can be collected any time.

Failure to collect blood

Time evaluation	failure rats in total animals	failure rate (%)
24 hr (one-day)	1/22	5%
48-72 hr (2,3-day)	2/17	12%
120 hr (5-day)	1/4	25%
168 hr (7-day)	6/14	43%

Results



Further improvements

- To change heparin-saline daily to protect the blood clotting
- To improve the surgery procedures to avoid tube fold.
- To treat location skin of catheter on rats to protect the itch or uncomfortable feeling.
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