



The *MEWIP* Study  
Monitoring-Effect Study  
of Wipe Sampling in  
Pharmacies



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**Financing,  
Organization**



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**Organization,  
Analysis**



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**Statistical  
analysis**

**IfAP  
e.V.**

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**Data collection,  
Organization**

## 1. Primary aims:

- **Determinate the contamination level**
- **Investigate suitability and effects of a regular monitoring**

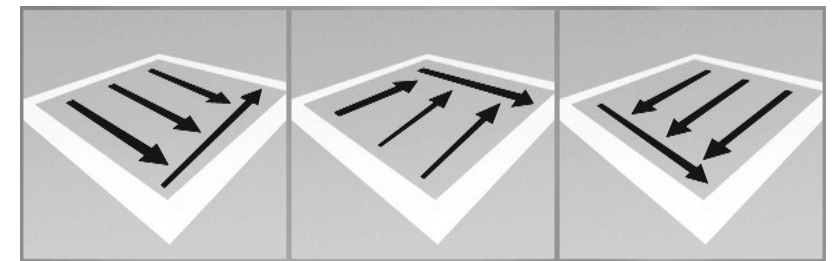
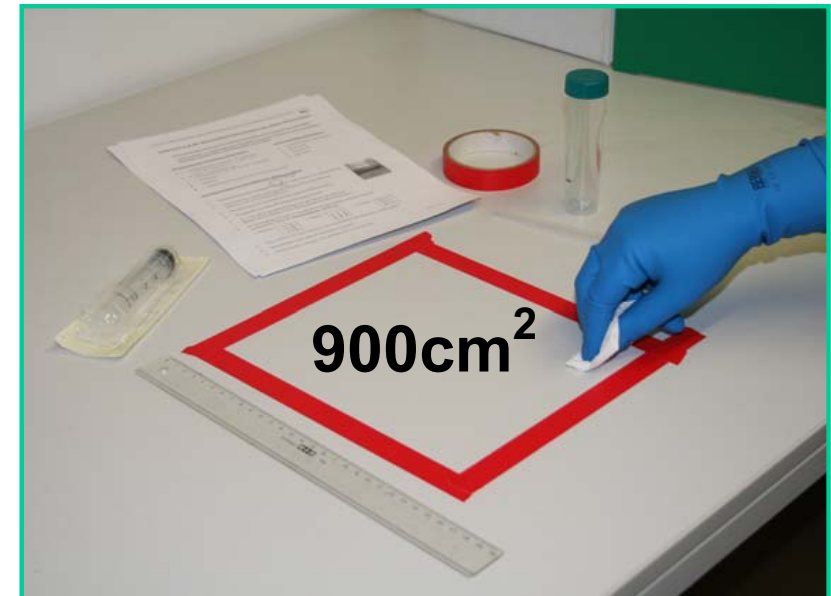
## 2. Secondary aims:

- **Investigate origin and spread of contamination**
- **develop strategies for minimization of exposure**

- 130 Pharmacies; 78 hospital pharmacies, 52 public pharmacies
- Selected from more than 200 interested, (total approx. 800)
- Excluded: isolators, < 500 preparations/year, difficult to reach
- Divided into 2 groups: A (55) intensive monitoring, B (75) control
  - Group A: 5 monitoring cycles, ≈ every 3-4 months  
receiving results during study → targeted actions
  - Group B: 2 monitoring cycles at beginning and end of the study  
no results before the end of the study

## Visits in each pharmacy at the begin of the study:

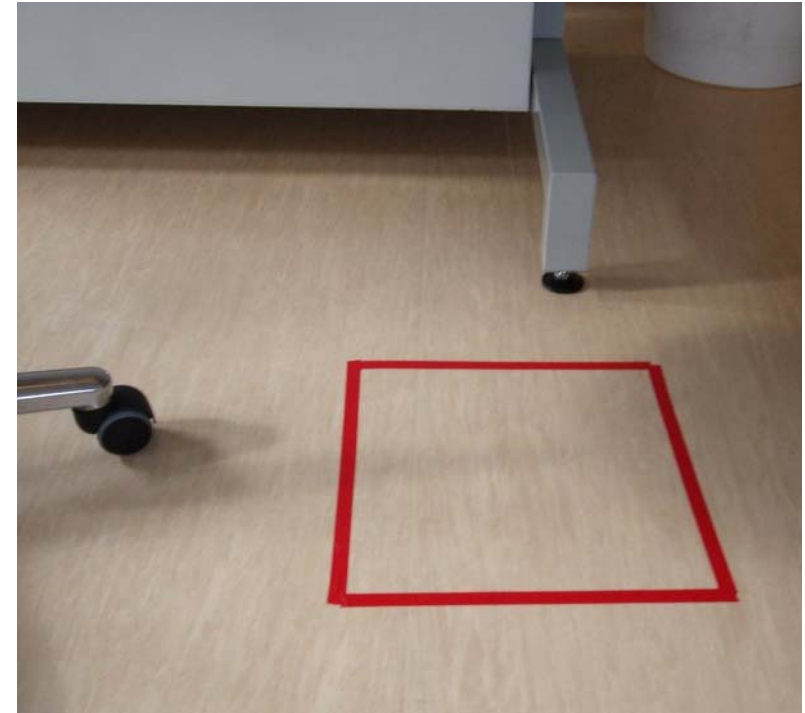
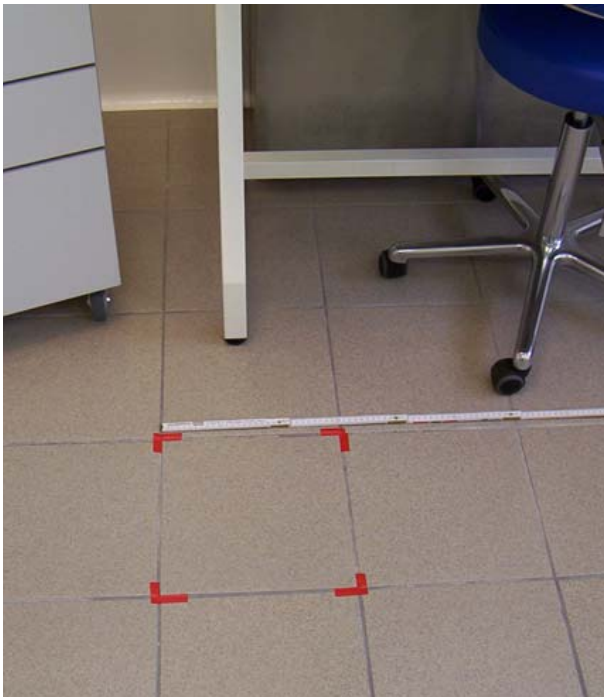
- 1. Detailed questionnaire on work procedures (12 pages)
  - a) type and amounts handled
  - b) hazards and spillage
  - c) cleaning procedures
  - d) waste management
  - e) education, tasks, working hours of personnel
  - f) protective clothing and equipment
  - g) participation in training seminars
  - i) participation in monitoring programs
- 2. Questionnaire for each sampling round (a, b, c and changes)
- 3. Feedback questionnaire after monitoring program



- Wipe sampling by pharmacy personnel using IUTA kit and SOP
- Demonstration and explanation during visits
- Sampling after work shift, before cleaning

# Methods: Sampling spots

## 1. Floor in front of the (most intensively used) safety cabinet



|                        |       |                |      |
|------------------------|-------|----------------|------|
| Plastic, linoleum, PVC | 84,6% | Other          | 3,8% |
| Tiles                  | 8,5%  | No information | 1,5% |
| Parquet, Laminate      | 1,5%  |                |      |

## 2. Work top (most intensively used)



|                     |       |                |      |
|---------------------|-------|----------------|------|
| HDF chipboard       | 60,8% | Other          | 0,8% |
| Stainless steel     | 36,2% | No information | 0,8% |
| Stoneware, ceramics | 1,5%  |                |      |

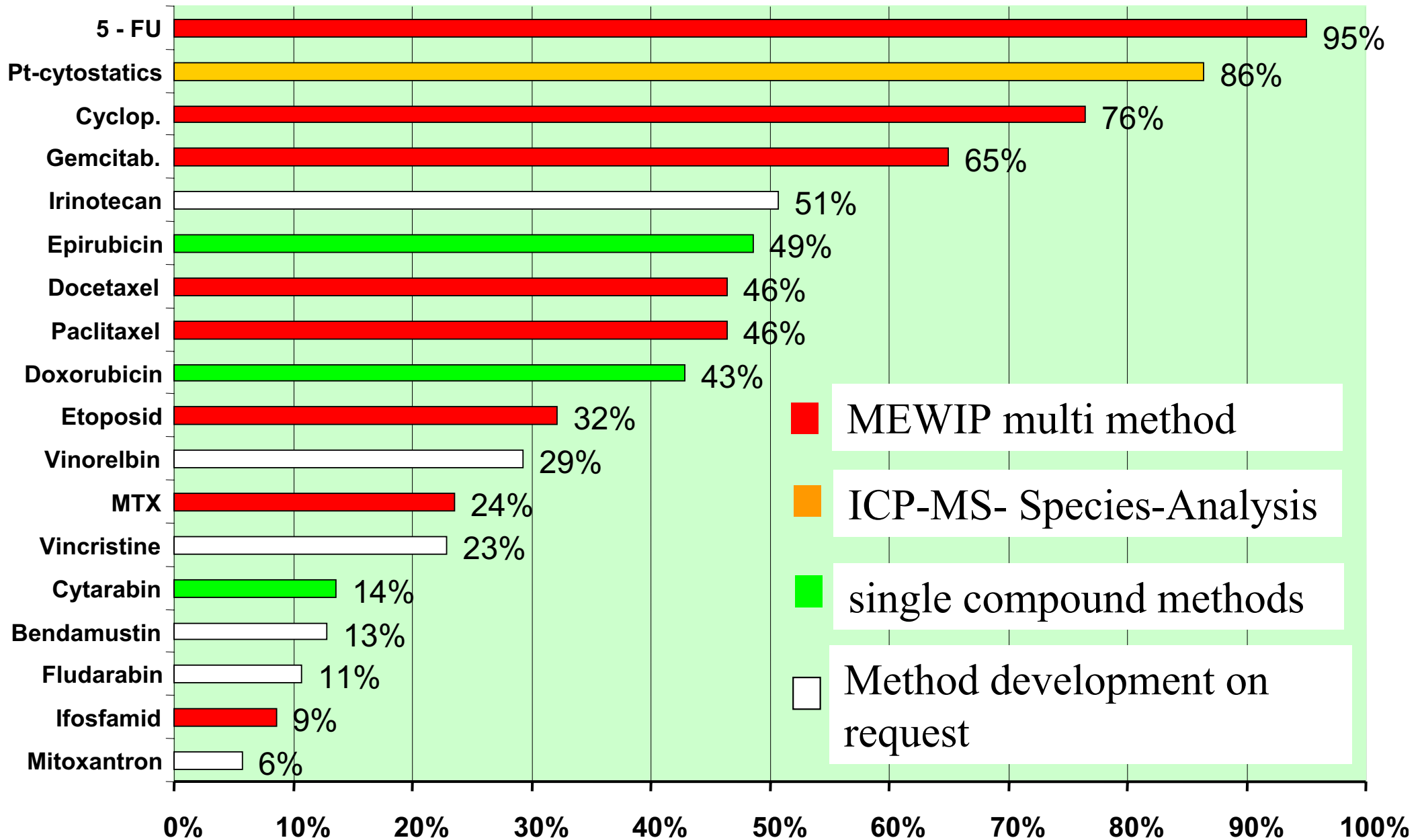


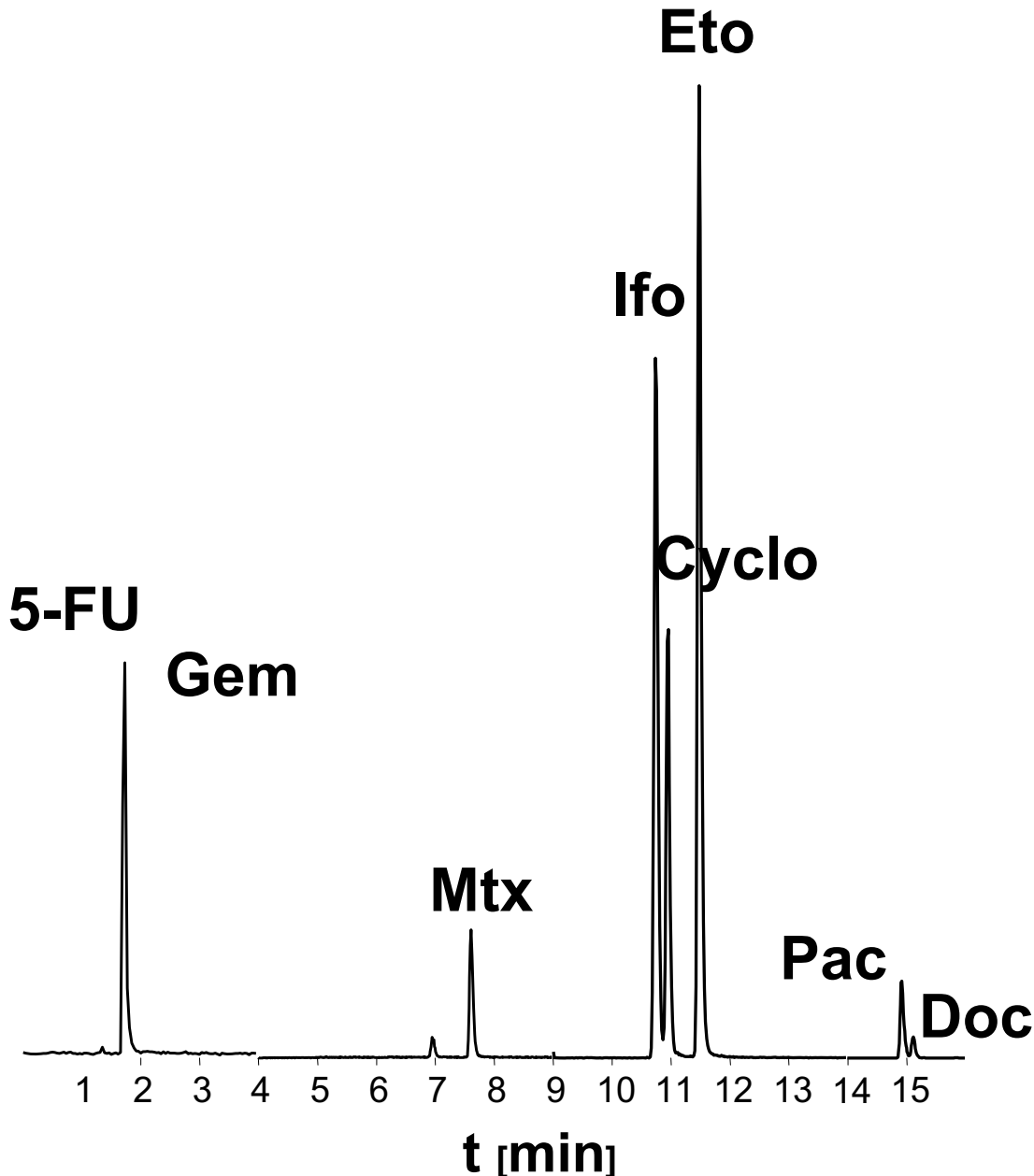
## 3. Fridge door including handle



|                       |      |                |      |
|-----------------------|------|----------------|------|
| Coated, painted metal | 78,5 | Other          | 10,8 |
| HDF chipboard         | 4,6  | No information | 1,5  |
| Glass                 | 4,6  |                |      |

# Methods: Compounds





Matrix standard: c = 50ng/mL 50x3mm  
Shim-Pack XR-ODS, 2,2µm column  
T = 30°C, Flow: 300µL/min

Ionisation: Electrospray (ESI)

1. Period: 0–4min, 2. Period: 4–9min,
3. Period: 9–14min,
4. Period: 14–16min.

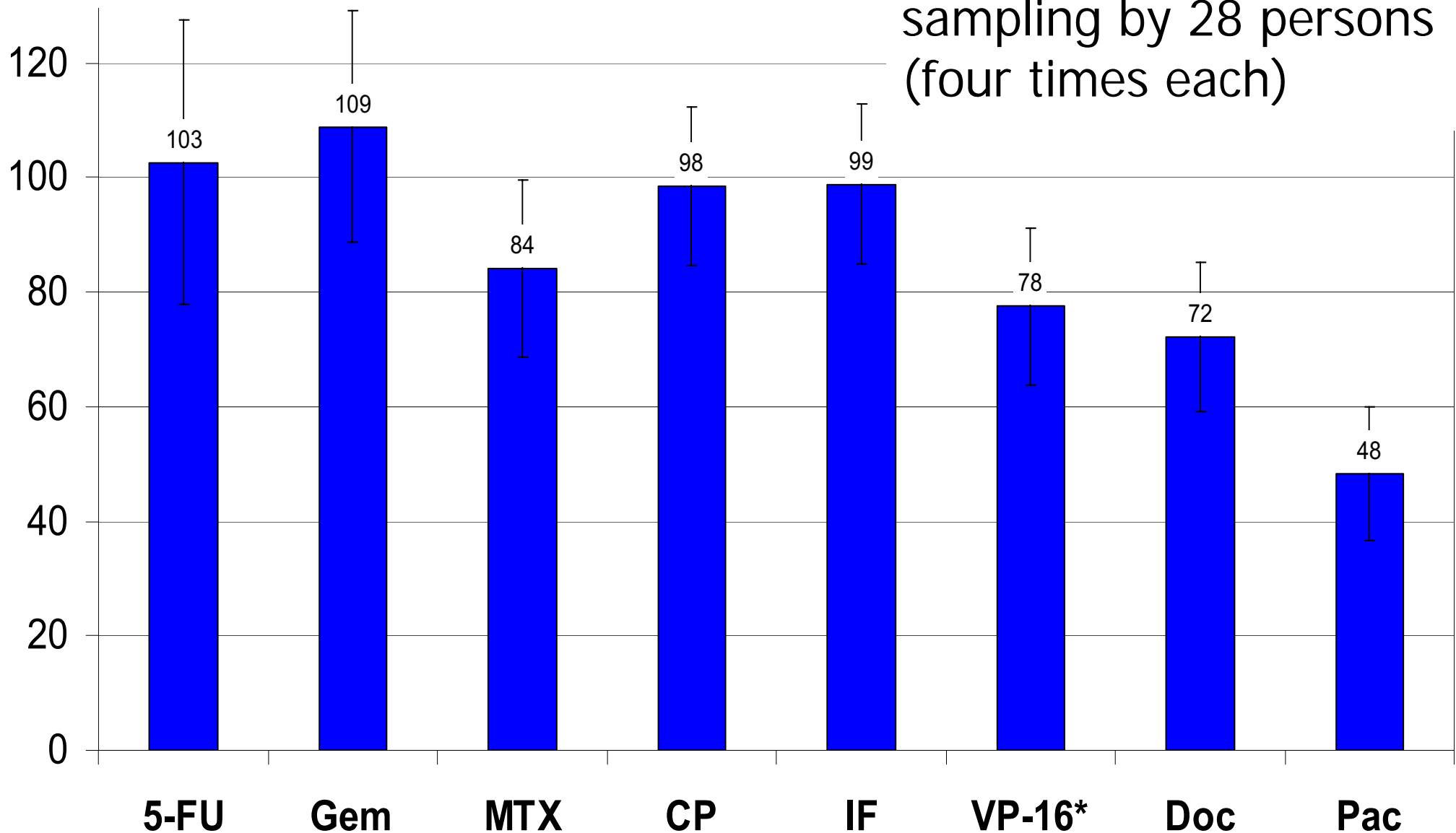
Gradient: 0-1min 95% A, 15min 50% A,  
20 min 50% A, 21 min 95% A,  
25 min 95% A

A: 0,1% Formic acid in water,  
B: 0,1% Formic acid in ACN

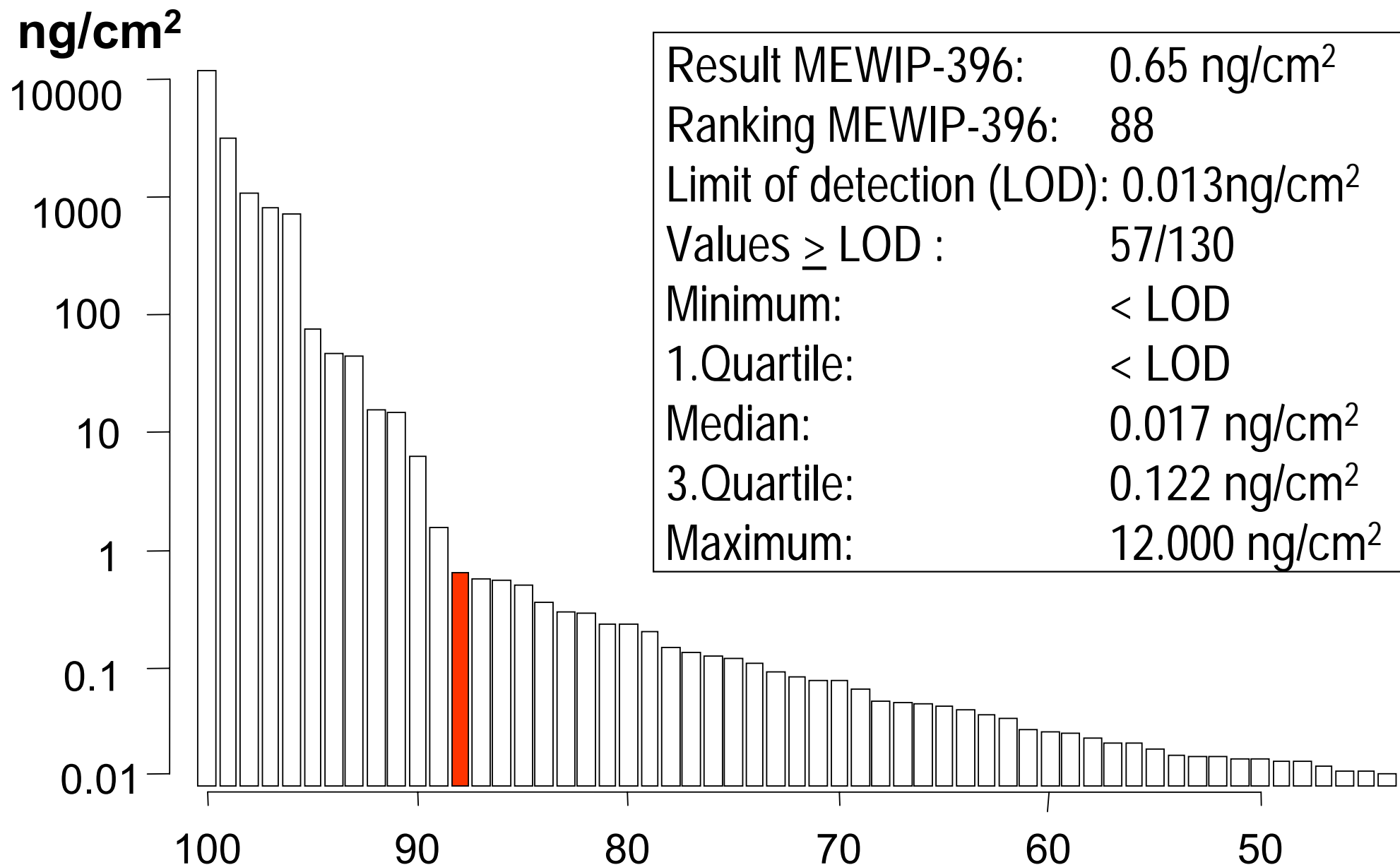
LODs [ng/cm<sup>2</sup>]:

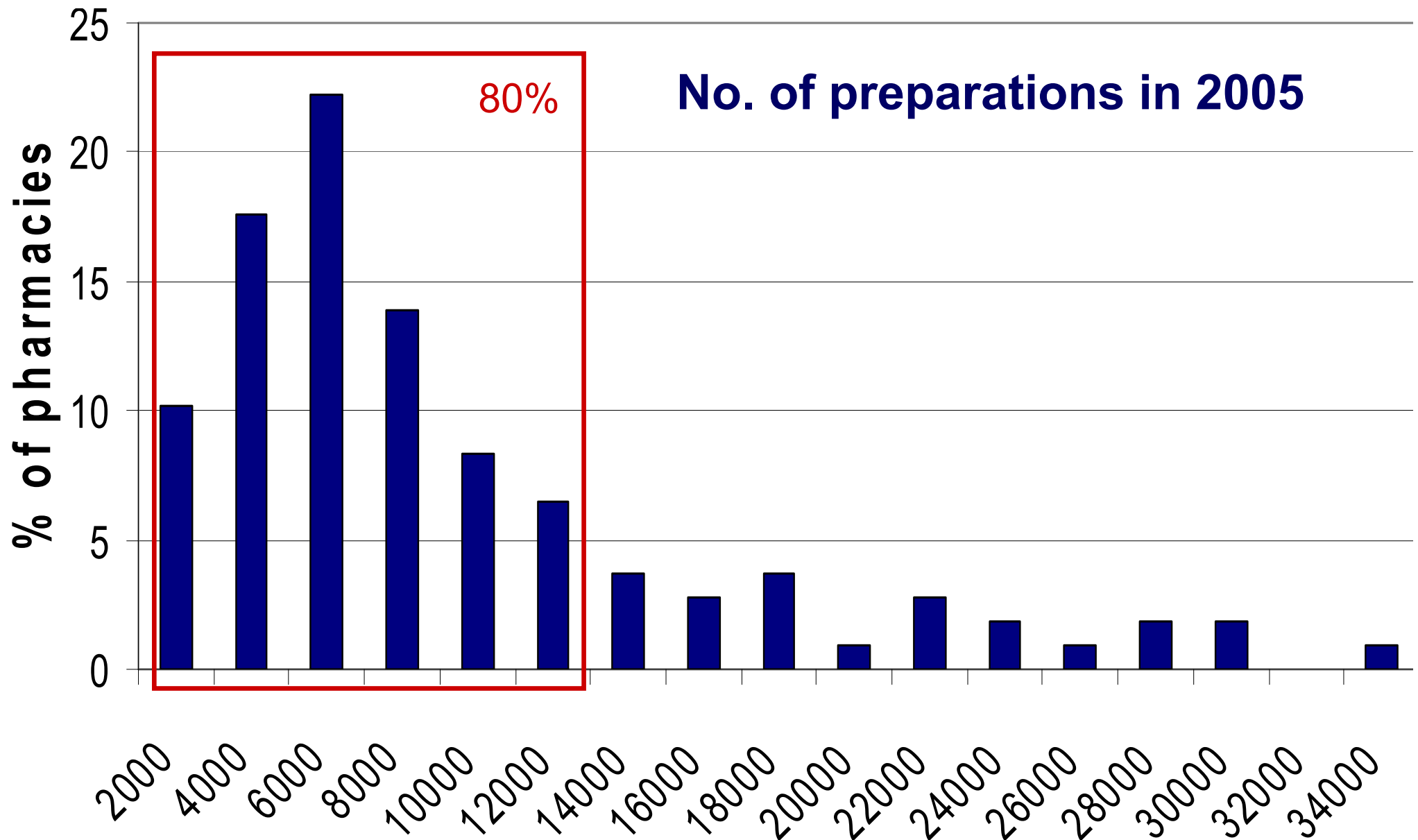
|             |               |
|-------------|---------------|
| 5-FU: 0.011 | Eto: 0.0073   |
| Gem: 0.0073 | Cyclo: 0.0037 |
| MTX: 0.0037 | Pac: 0.0367   |
| Ifo: 0.0037 | Doc: 0.0183   |

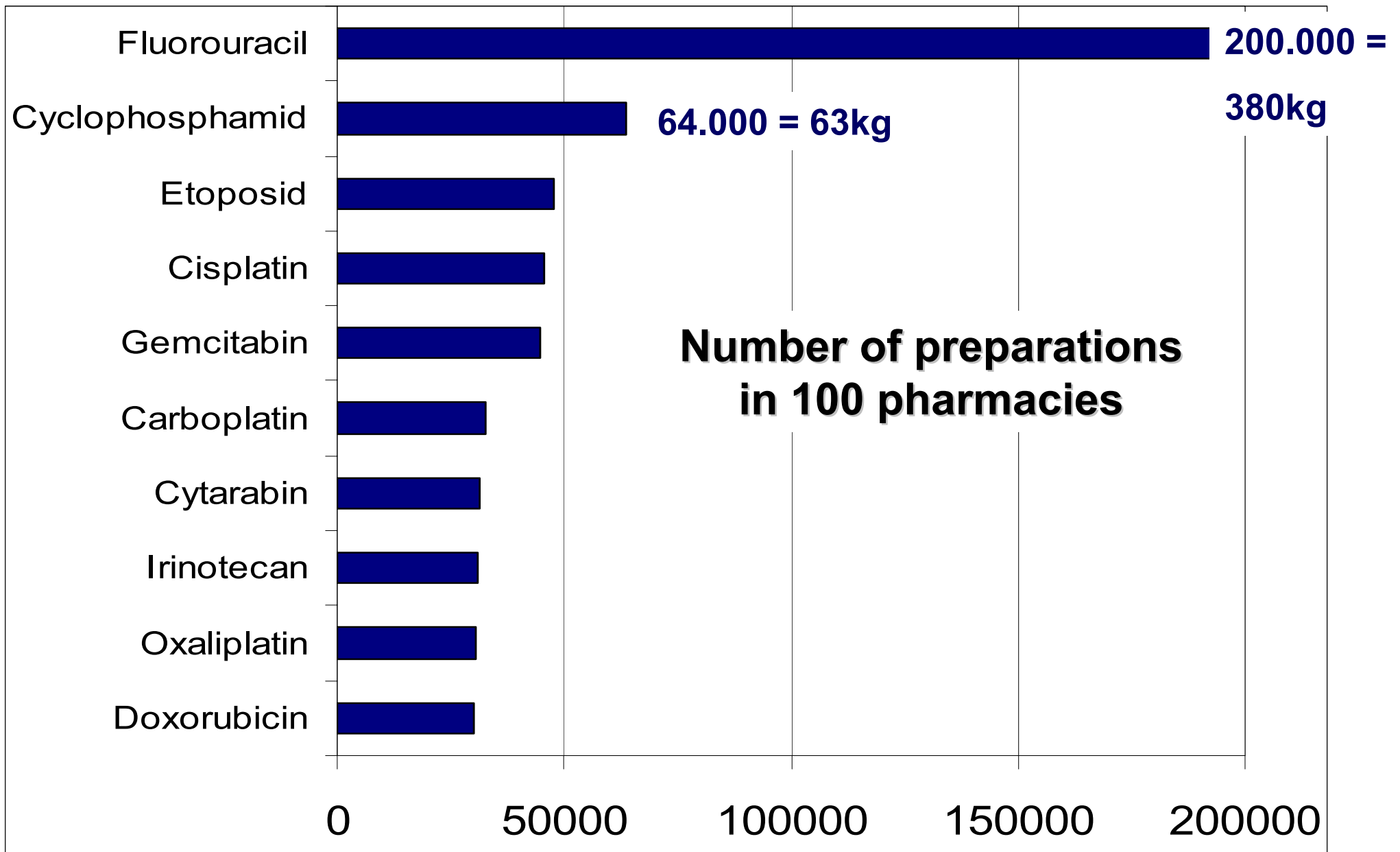
## Recovery [%]

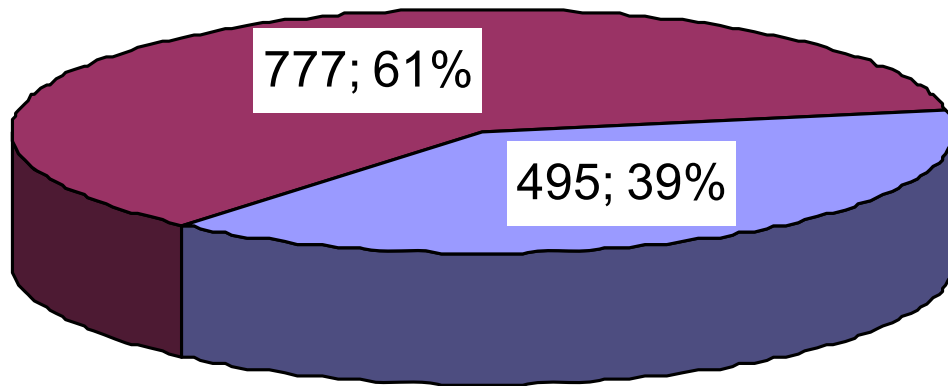


# Methods: Reports for participants



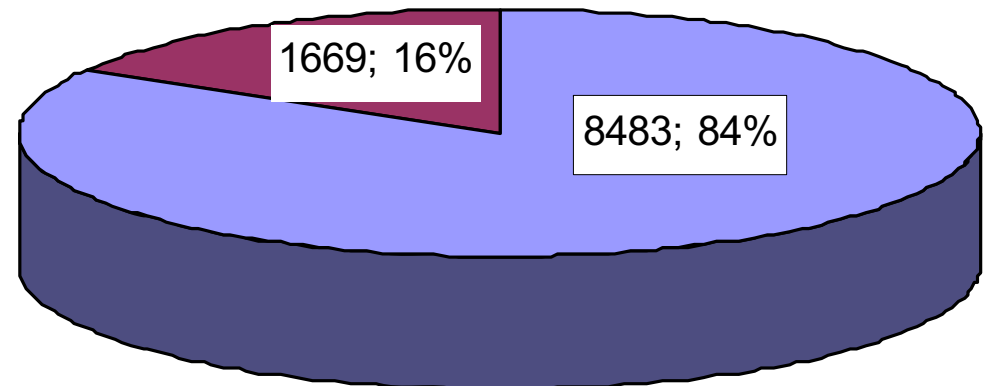






1.272 wipe samples

61% positive with at least one substance



10.176 measurements

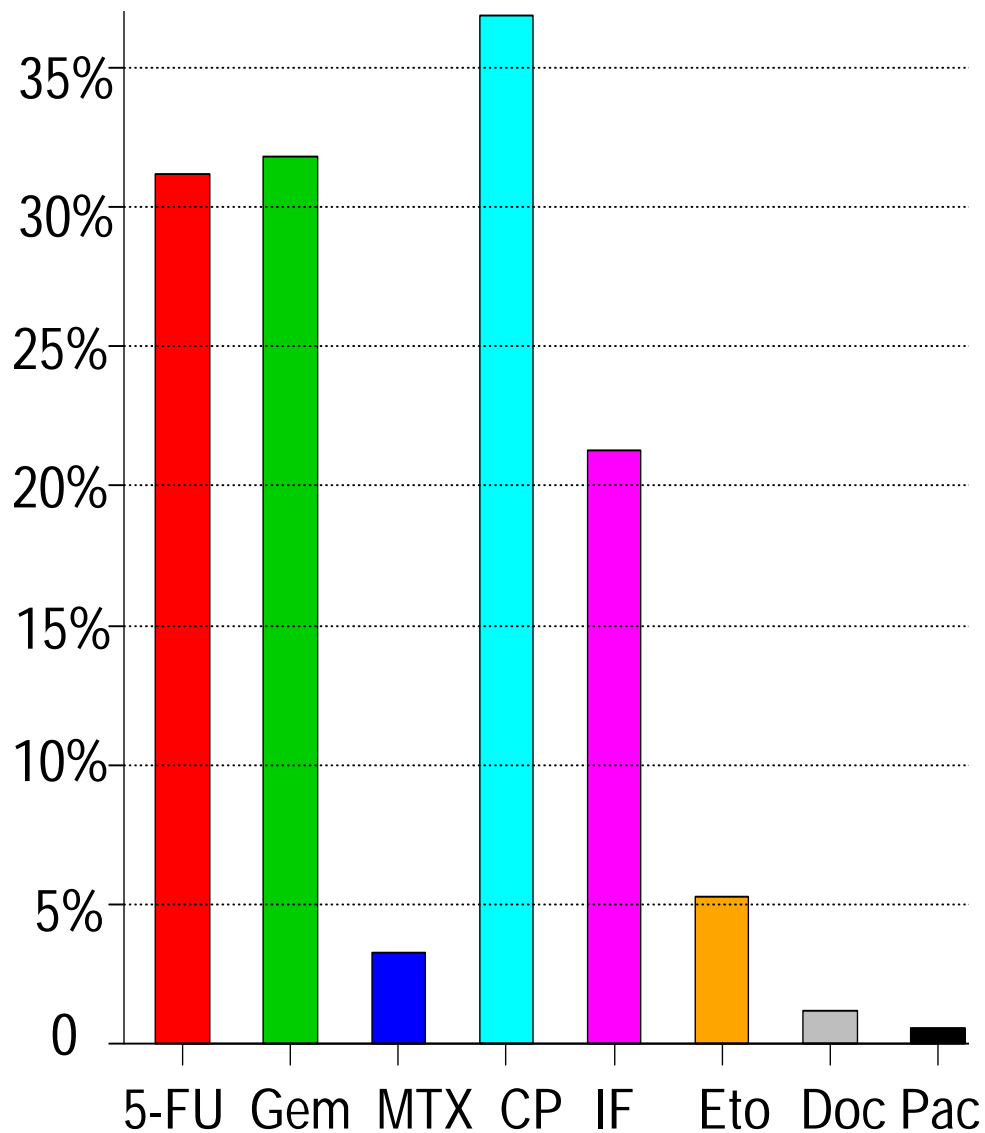
16% positive for the single compound

|                            |                          |
|----------------------------|--------------------------|
| Average area contamination | 2.909 ng/cm <sup>2</sup> |
| Total contamination        | 2.618.273 ng             |

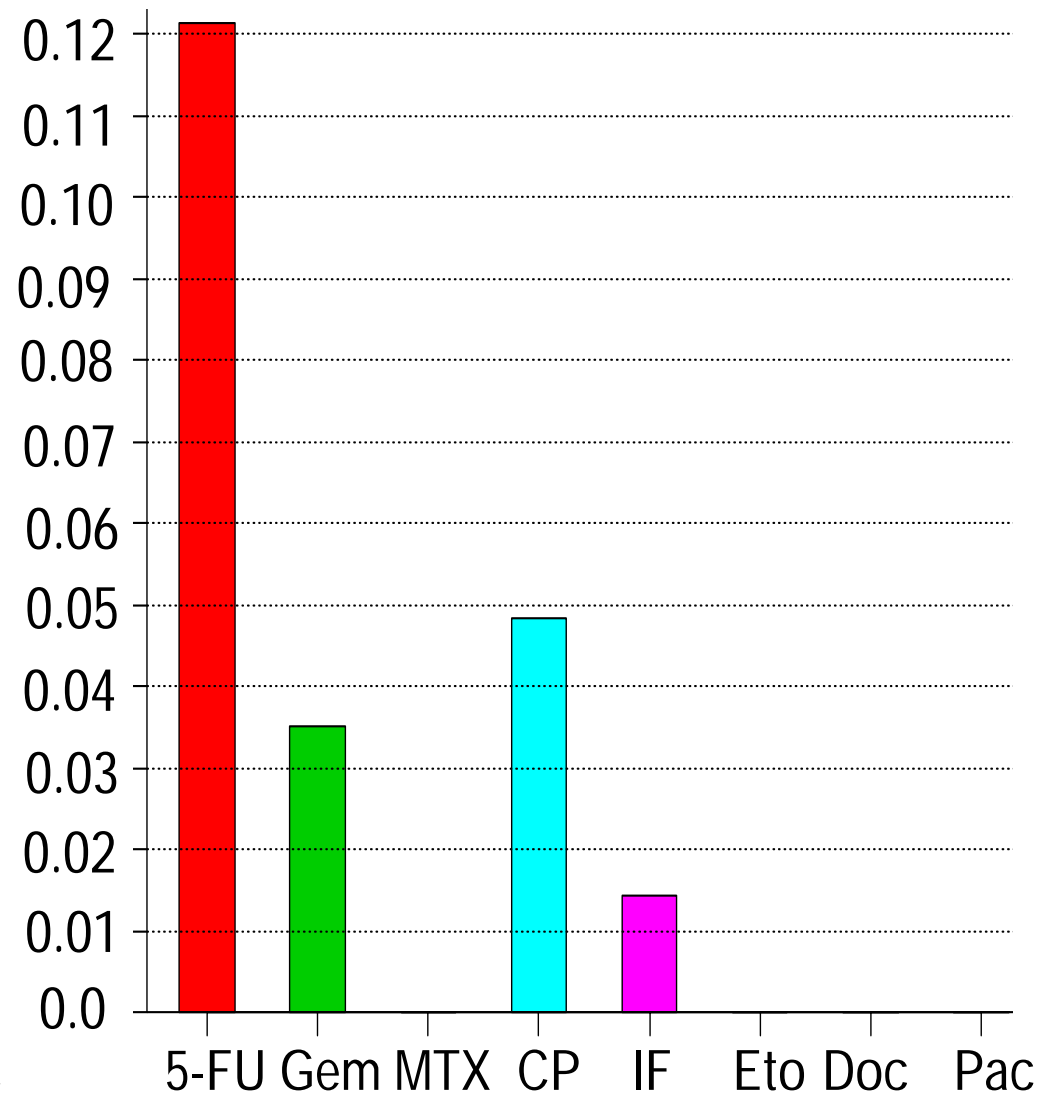


# Results: 8 substances

*Percentage positive samples*

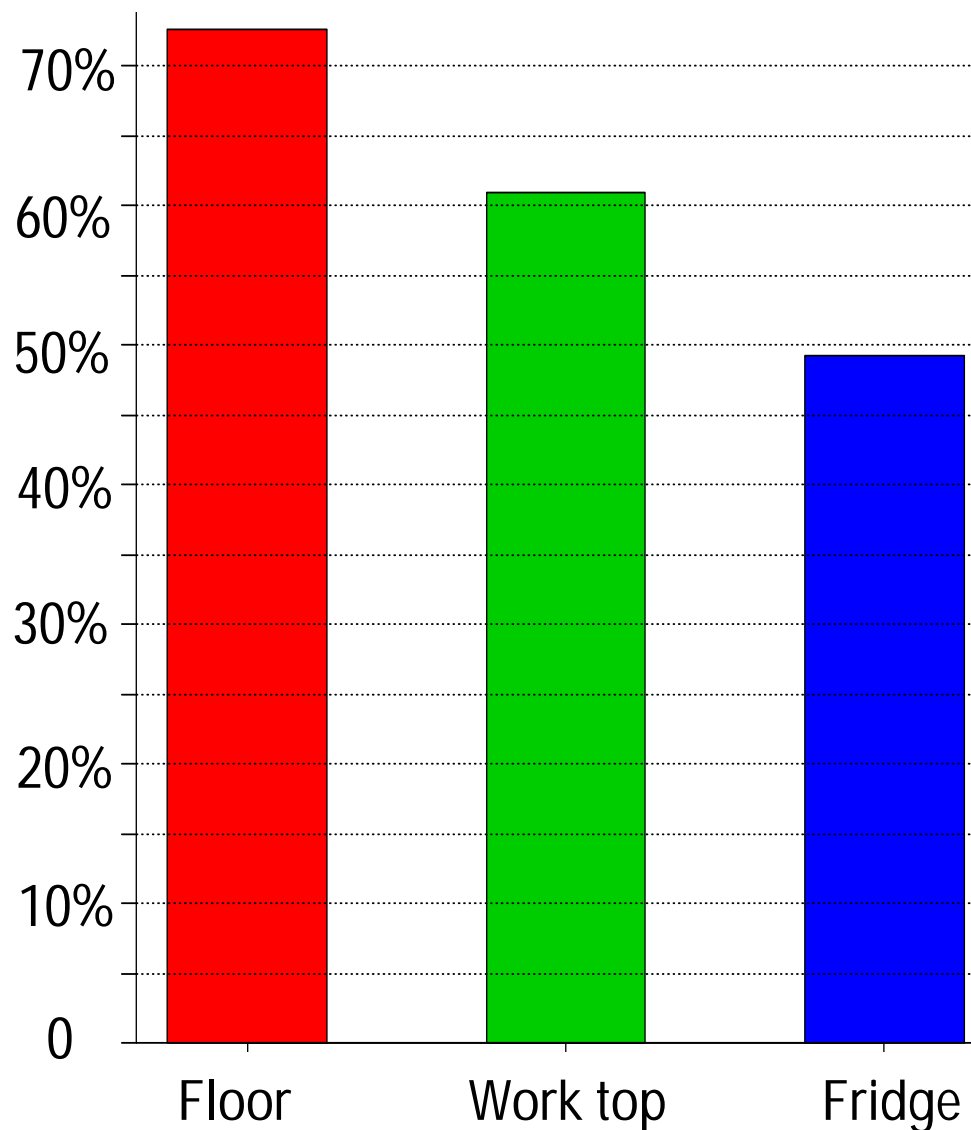


*90. Percentile [ng/cm<sup>2</sup>]*

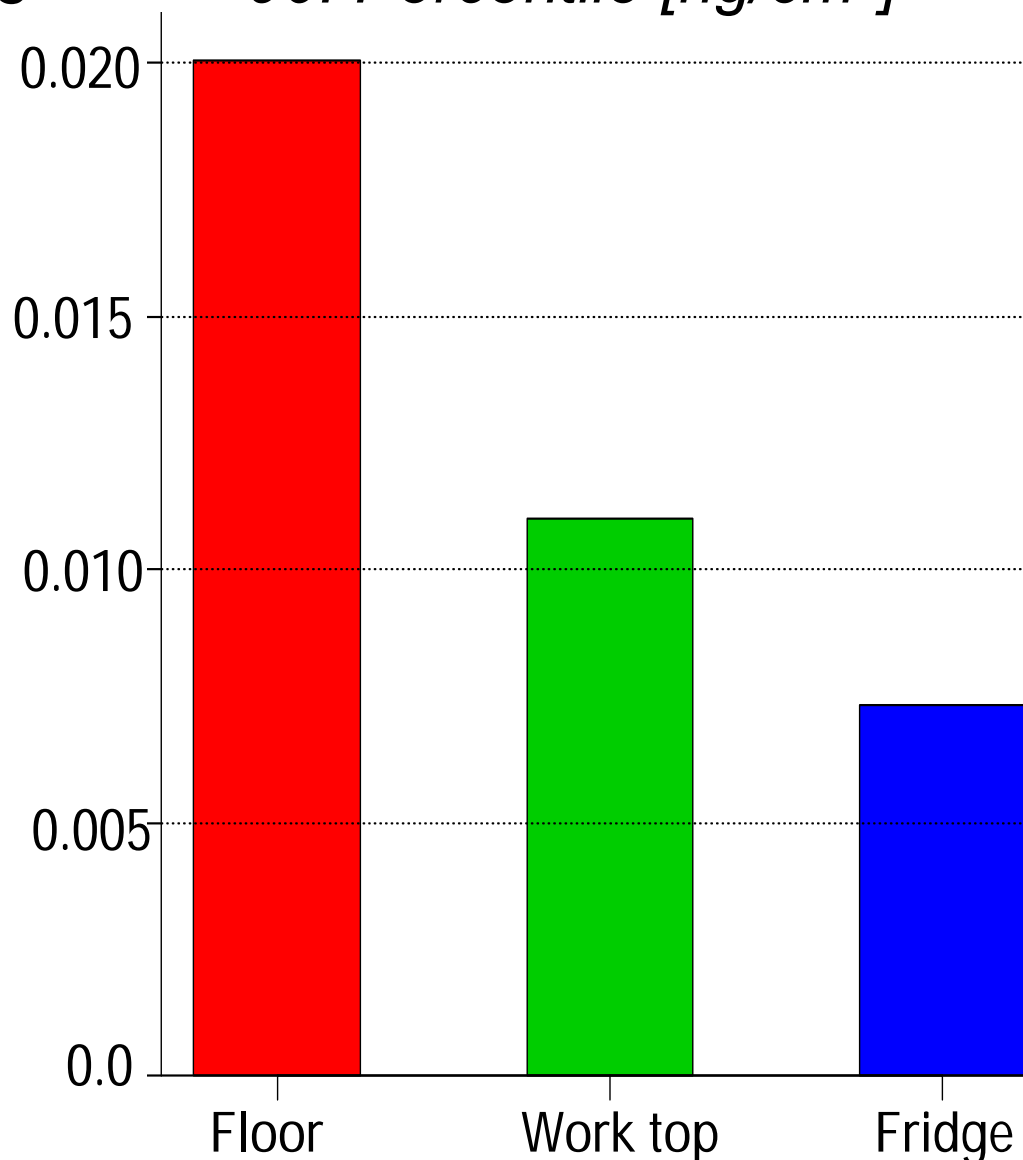


# Results: 3 Sampling spots

*Percentage positive samples*



*90. Percentile [ng/cm<sup>2</sup>]*



## 1. Percentage positive samples:

