# PACLITAXEL DESENSITIZATION PROTOCOL : STABILITY STUDY

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## INTRODUCTION

**Paclitaxel** : Anticancer drug that may cause hypersensitivity reactions

If hypersensitivity reaction

→ Multidisciplinary consultation meeting

→ Paclitaxel essential in view of the absence of alternatives

→ Other therapeutic alternatives

Twelve-step desensitization protocol : Administration of three 250mL infusion bags
-> Increasing doses starting with low dose
-> Increasing infusion rates

| Preparation | 1st | 2nd | 3rd |
|---|---|---|---|
| Dose | 1% of the dose [9.8-14 µg/ml] | 10% of the dose [98-140 µg/ml] | 100% of the dose [0.98-1.4 mg/ml] |
| Stability | No data | | 28 days at room temperature (ACCORD) |

*Calculation of concentrations*: based on a body surface area range between **1.4 and 2**; dosage = **175 mg/m²**

Protocol lasting on average 6h → Can the infusion bags be prepared the day before?

## OBJECTIVE

To carry out a stability study of paclitaxel at concentrations between **8 and 160 µg/ml** in order to ensure the stability of infusion bags in the absence of data at low concentrations.
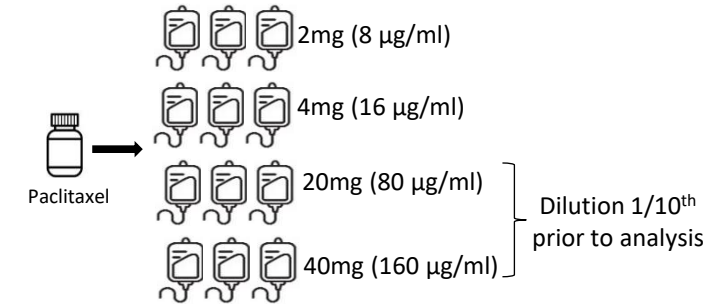
## MATERIAL AND METHOD

### Storage Conditions
- 20-25°C
- Not protected from light
- Solvent : 5% glucose
- 250mL polyolefin infusion bag
- Paclitaxel ACCORD 6mg/ml vial

### Method:
- HPLC – UV
- Detection 227nm
- Column :  Uptisphere C18 250*4.6*5
- Mobile phase : acetonitrile/water 80/20
- Flow rate : 1mL/min
- Injection volume : 10µl
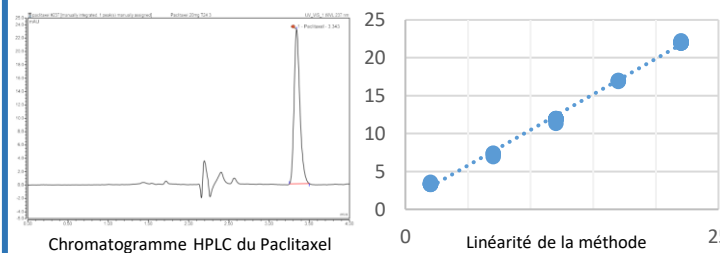- Analysis time : 5min
- Range interval : 2-22µg/ml

Paclitaxel →
2mg (8 µg/ml)
4mg (16 µg/ml)
20mg (80 µg/ml)
40mg (160 µg/ml)

Dilution 1/10th prior to analysis

| Initial time | Intermediate sampling times | | | | | Total |
|---|---|---|---|---|---|---|
| 0 | 1h | 3h | 6h | 12h | 24h | 48h |

**Acceptance criteria** : degradation < 5%

## RESULTS

| Validity range | 2-22 µg/ml |
|---|---|
| Retention time | 3,5min |
| Line equation | y = 0,9384x + 1,1032 |
| R² | 0,9967 |
| Coefficient of variation | 1,48% |


Chromatogramme HPLC du Paclitaxel


Linéarité de la méthode



**Stability of Paclitaxel according to the bag concentration**

% of Cm compared to Ci vs Time in h

- Paclitaxel 2mg
- Paclitaxel 4mg
- Paclitaxel 20mg
- Paclitaxel 40mg

Cm : mean concentration
Ci  : initial concentration
- - - - : acceptance limits
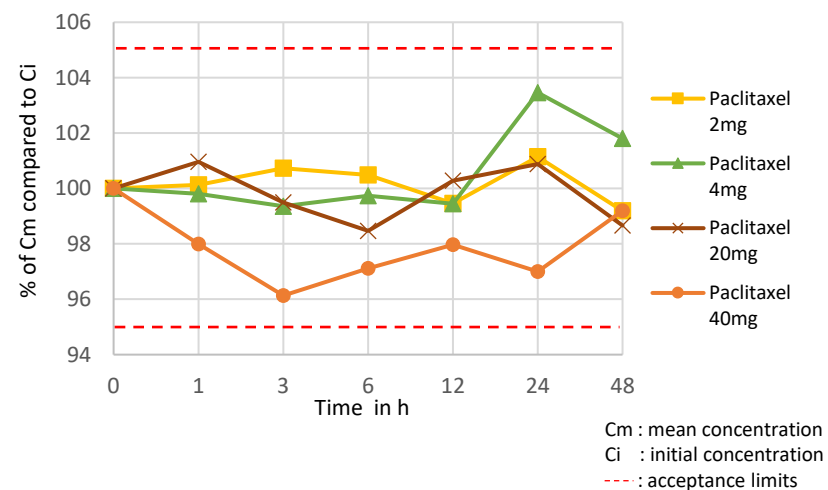
## DISCUSSION / CONCLUSION

Study limitations :
- No forced degradation performed
- Only one operator

Paclitaxel diluted in 5% glucose at concentrations between 8 and 160 µg/ml is stable for 48h.

→ **These results will allow better organisation between the preparation of treatments and their long administration in the care unit**