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## Introduction

- Cardiovascular disease (CVD) is the leading cause of death worldwide<sup>1</sup>
- Evidence suggests a positive effect of polyphenol intake on CVD risk<sup>2</sup>
- Polyphenols have antioxidant and anti-inflammatory properties<sup>3-5</sup>
- Brown seaweed is a rich source of polyphenols<sup>6</sup>
- Paucity of research investigating bioavailability of seaweed polyphenols and their potential benefits

## Aim

To investigate the biological activity of a food grade seaweed polyphenol extract in terms of reducing oxidative damage to DNA, modulation of inflammatory responses and reduction on chronic, low level inflammation *in vivo*.

## Intervention study

- Randomised, double-blind, placebo controlled, crossover design (n=80)
- Supplementation with seaweed extract (400mg capsule/day) for 8 weeks or placebo capsule
- Ethical approval granted by the University of Ulster Research Ethics Committee (REC/11/0077)
- Study conducted: August 2011 – February 2012

## Screening criteria

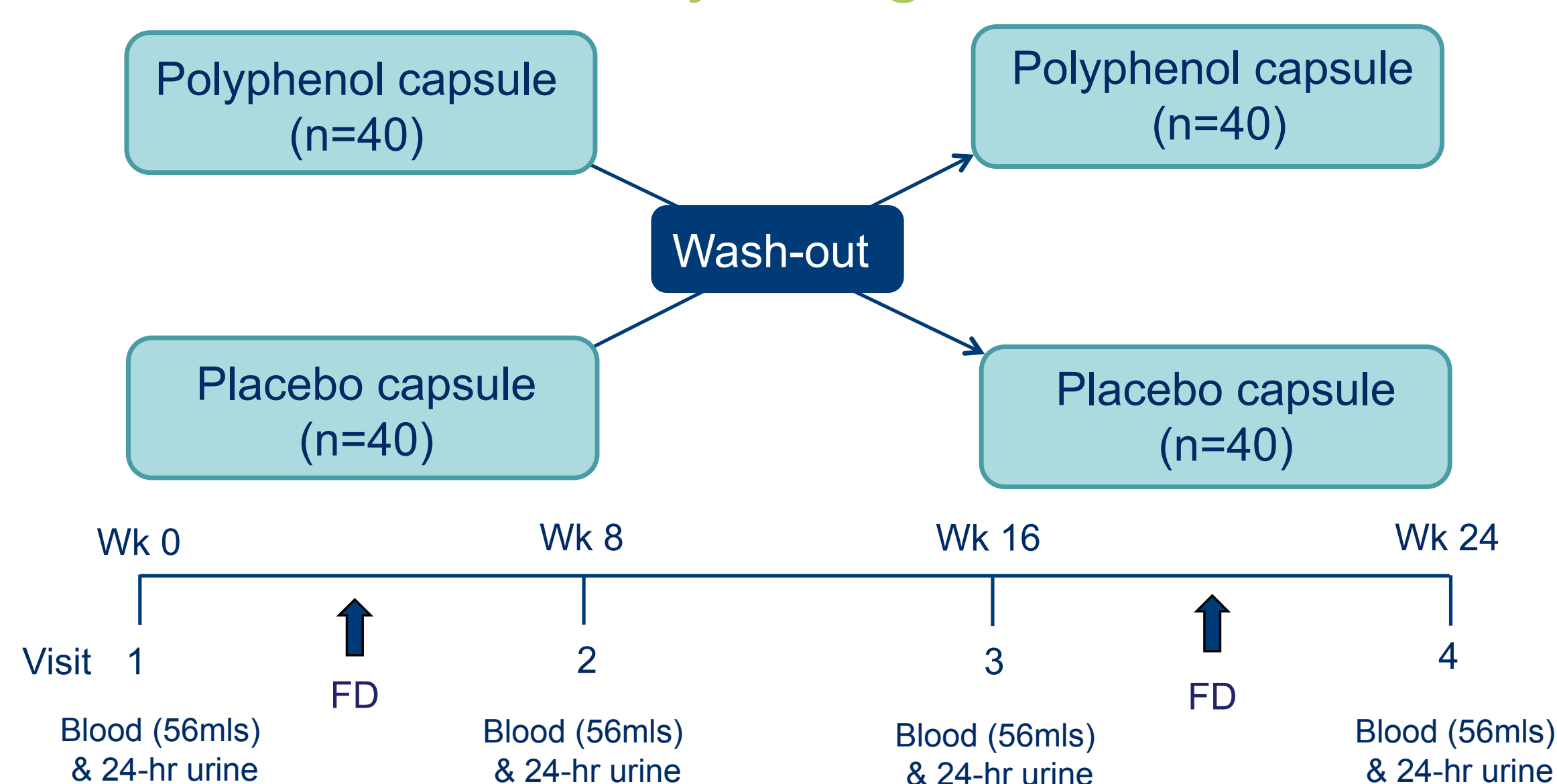
### Inclusion criteria

- Healthy
- Non-smoker
- Omnivores or vegetarians
- Aged 30-65 years
- BMI >25kg/m<sup>2</sup>

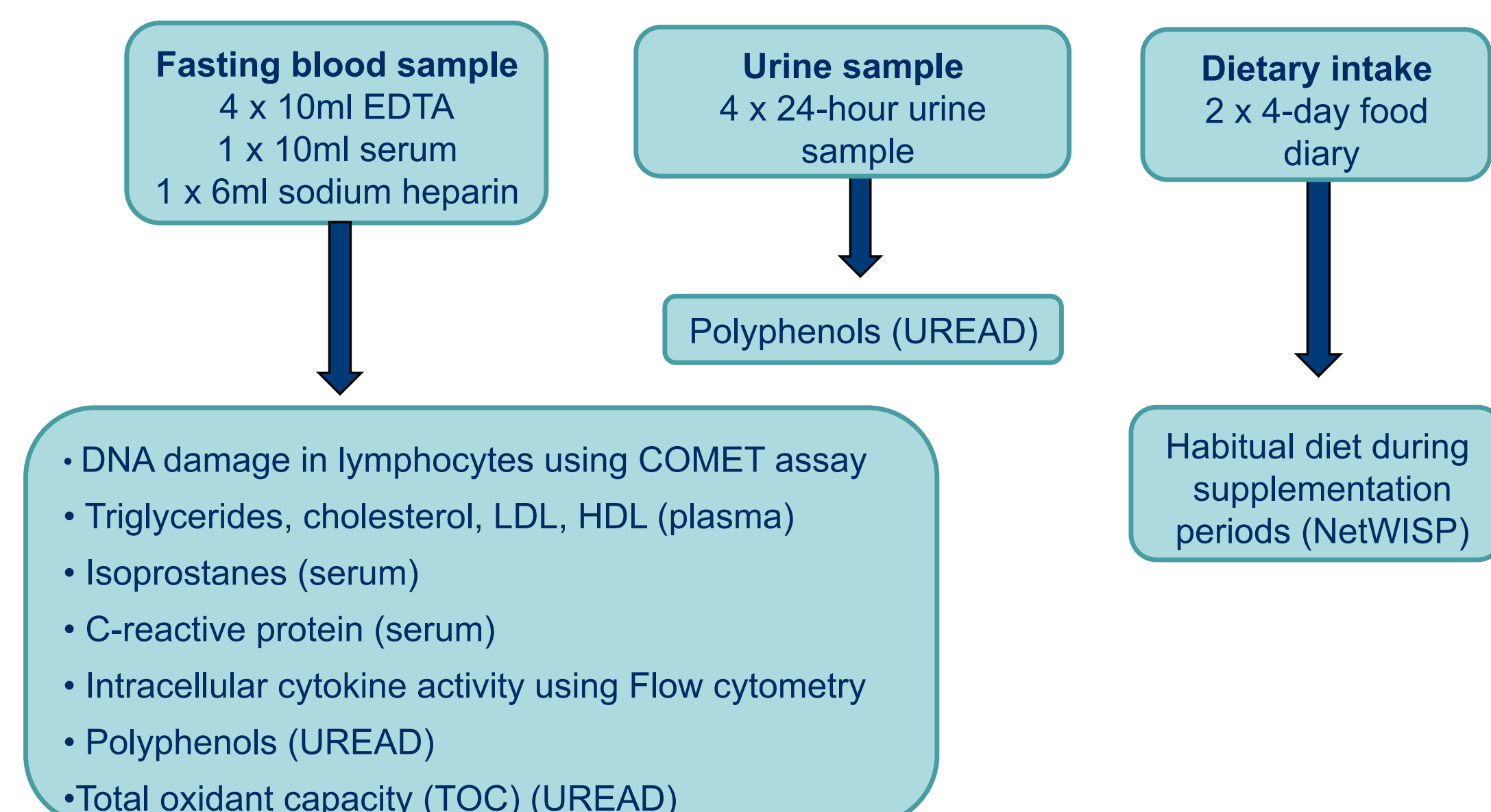
### Exclusion criteria

- Smokers
- Pregnant/lactating women
- Vegans
- Diabetes mellitus, CVD
- Autoimmune/inflammatory disorders
- History of neoplasm
- Recent acute illness
- Anti-inflammatory medication
- Habitual use of vitamin supplements

## Study design



## Outcome measures



## Results to date

### Baseline characteristics

- Age (yr) 42.7 ± 7.1
- Gender
  - Men n=39 (49%)
  - Women n=41 (51%)
- BMI (kg/m<sup>2</sup>) 30.2 ± 3.9

### Overall study compliance = 97%

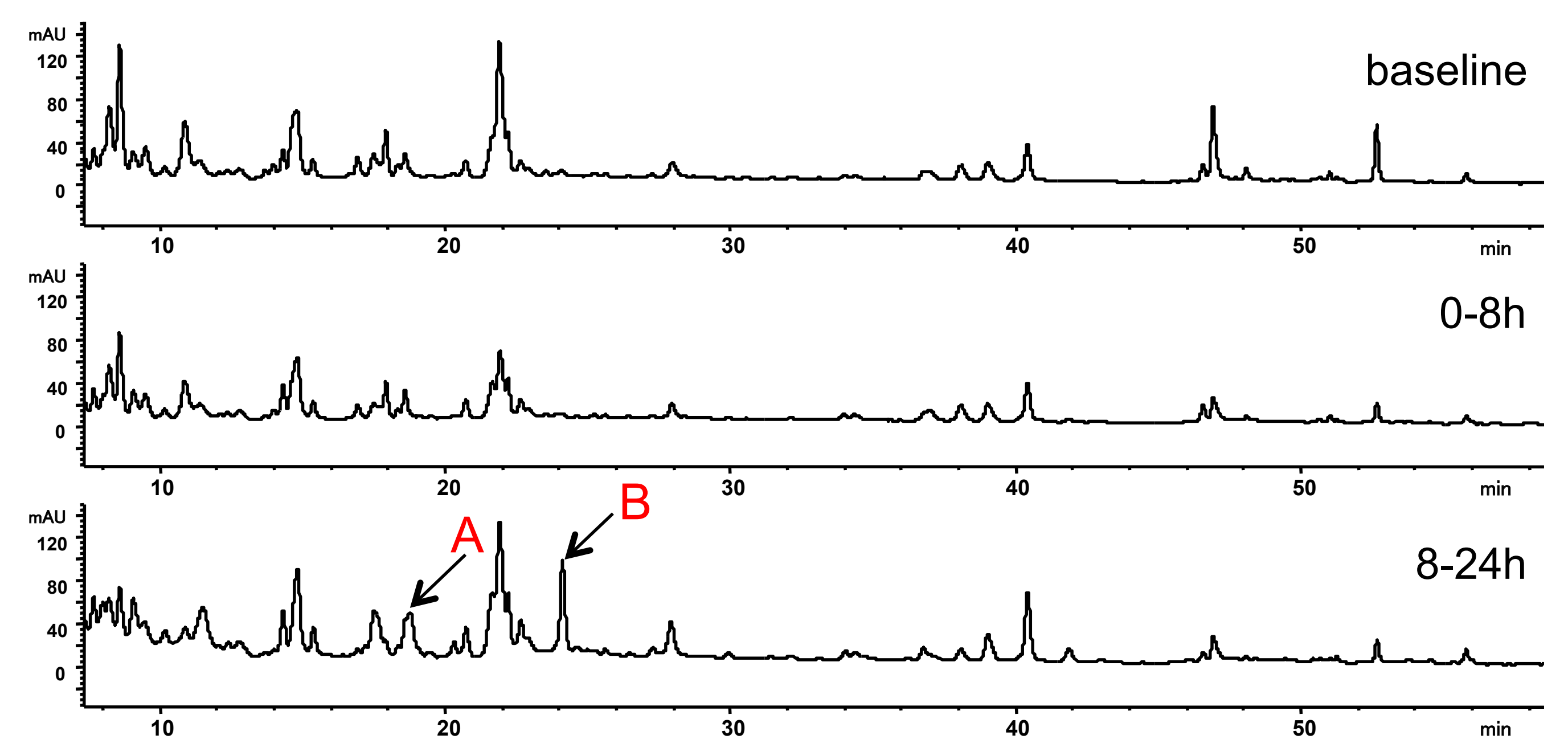
Compliance was not significantly different by treatment group or time period

## Preliminary findings



### Bioavailability study

Volunteers (n=24) ingested one seaweed extract capsule. Urine samples collected over 24 hours and analysed by HPLC-DAD



Seaweed polyphenols (A and B) detected in urine samples collected at 8-24 hours after treatment

Corona *et al.*, (unpublished)

## Conclusions

- This study is a focused investigation designed to provide strong scientific evidence for the bioavailability and health promoting activity of a seaweed polyphenol extract in human volunteers.
- This study will provide information on the antioxidant and anti-inflammatory potential of a range of novel seaweed extracts that could be further exploited.

## References

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Polyphenol extract manufactured by CEVA, France

Collaborators:



### For further information:

<http://www.seaweedforhealth.org/swafax/>