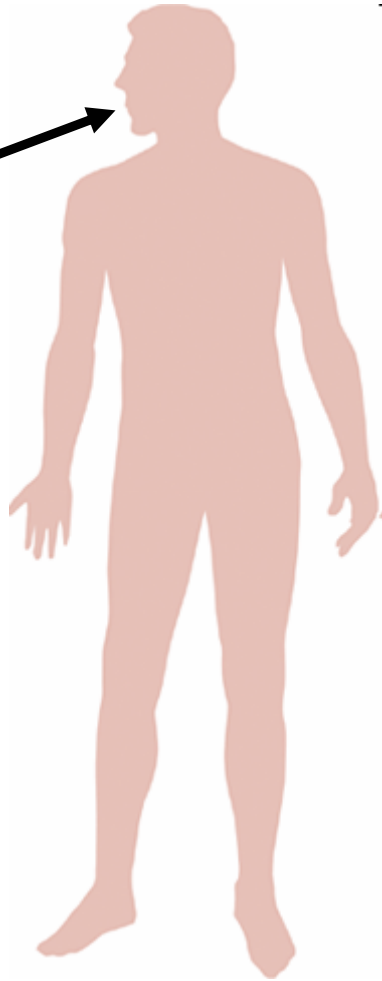


Is human health sufficiently protected?

PESTICIDE RESIDUES
IN FOOD

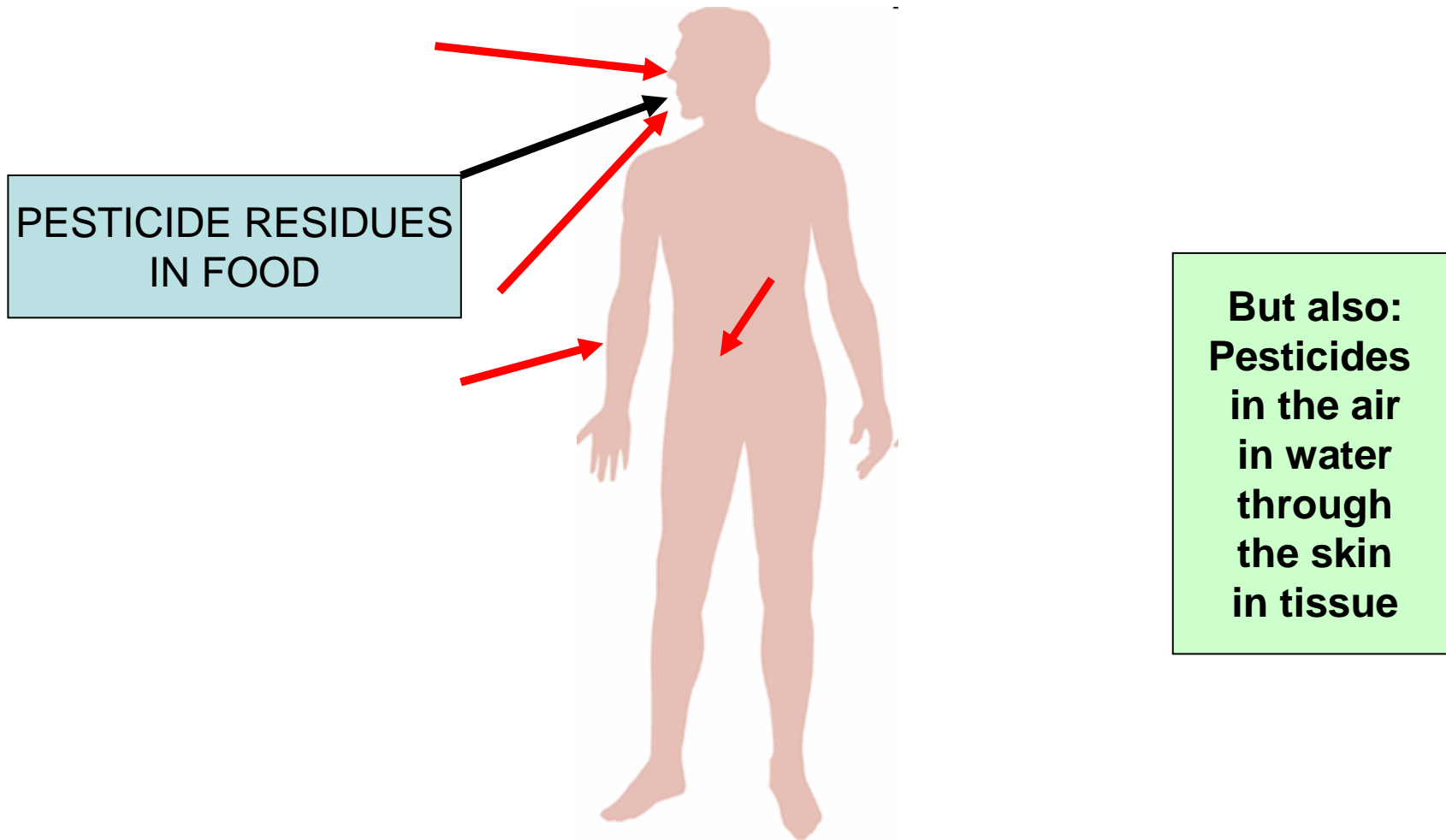


**Only exposure
of toxics
through
food intake?**



**Pesticide
Action
Network**
Europe

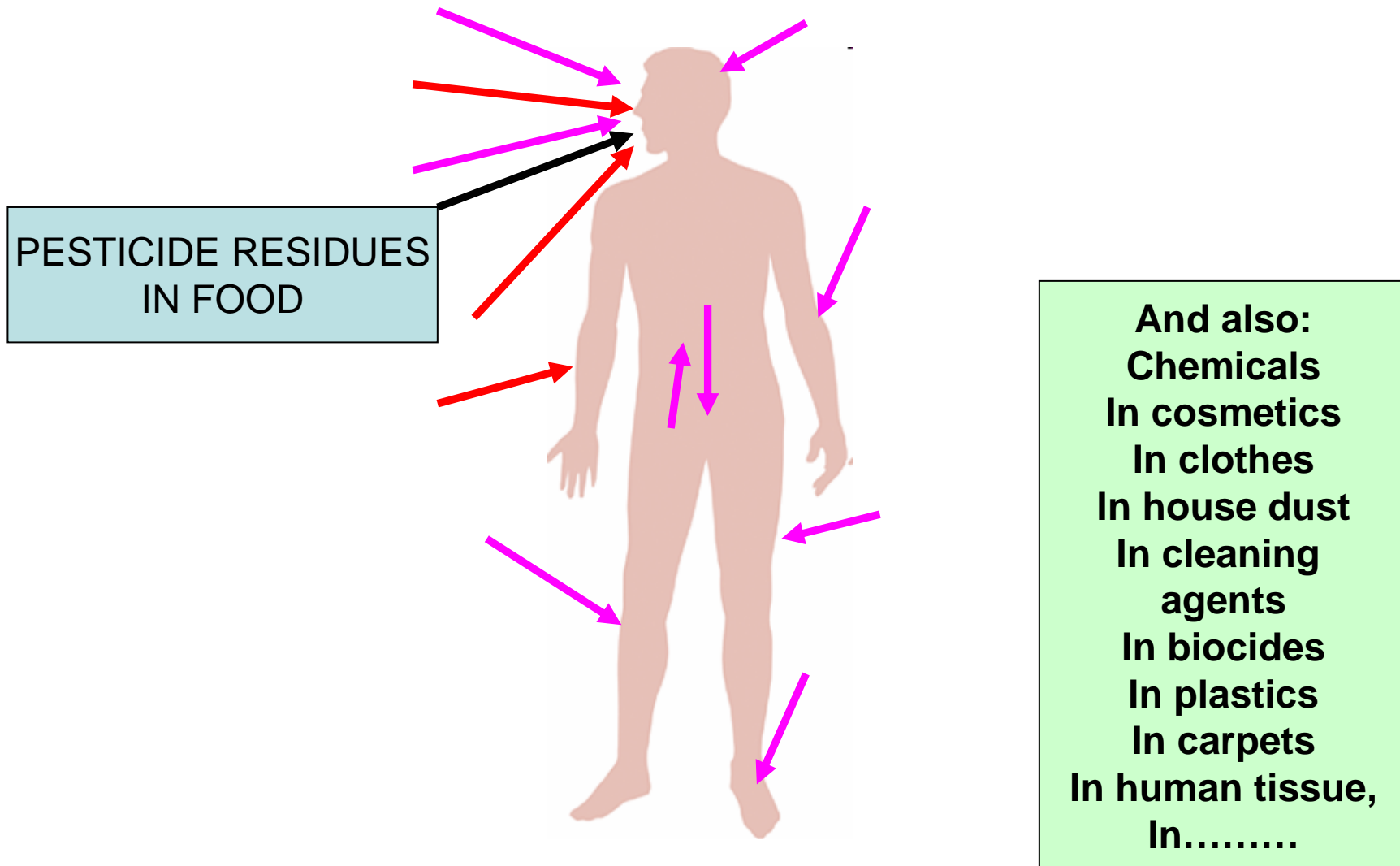
Is human health sufficiently protected?



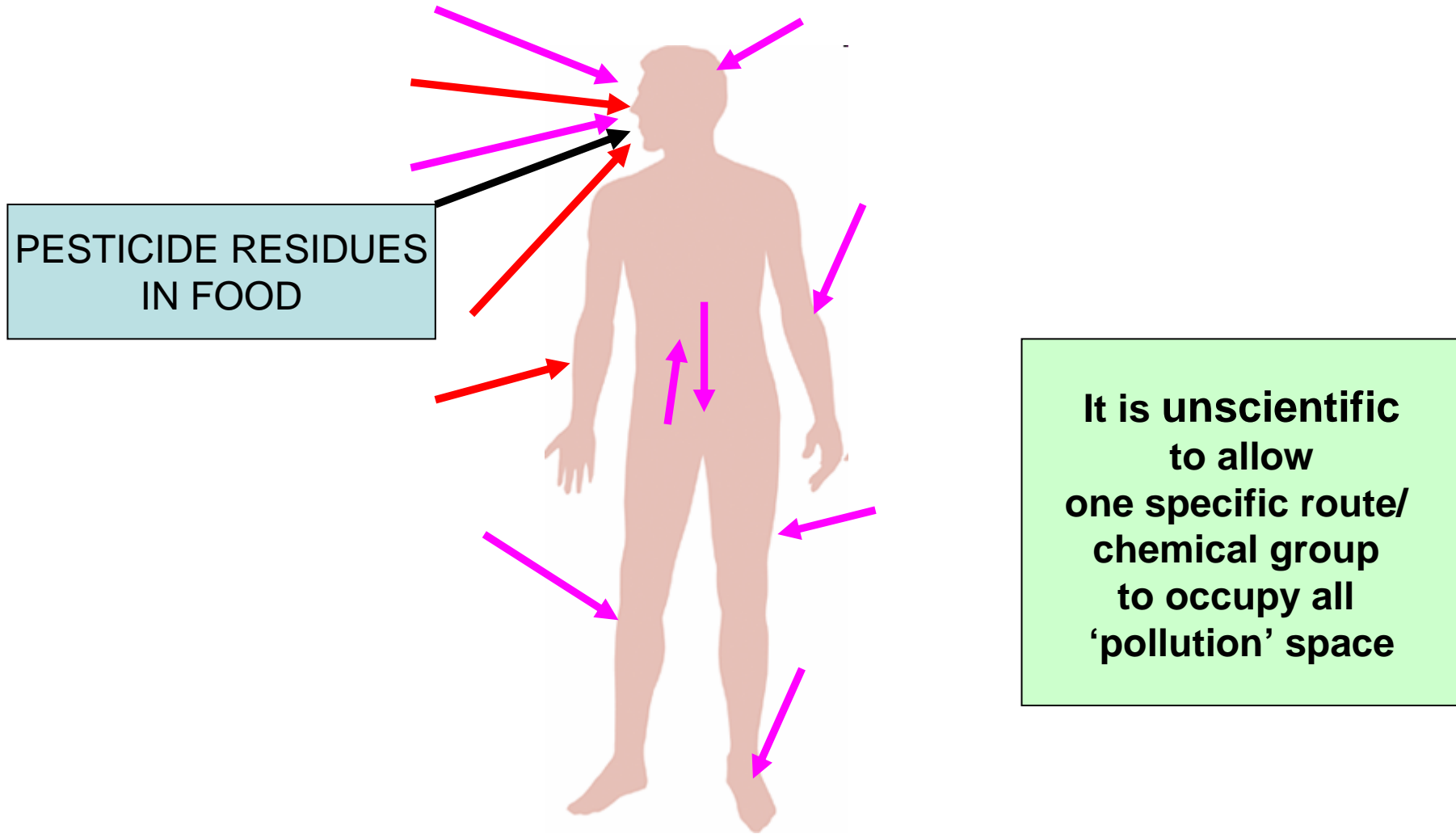
PESTICIDE RESIDUES
IN FOOD

**But also:
Pesticides
in the air
in water
through
the skin
in tissue**

Is human health sufficiently protected?



Is human health sufficiently protected?



Quantitative approach is an illusion

- Every human is exposed to hundreds of chemicals every day, adding to the existing ‘body burden’
- We know very little about the effects of these chemicals on the body, let alone the combination effects
- Narrow-focussed and limited OECD toxicity testing results give no more than an indication

Conclusion

- Food is only one exposure route of toxics & pesticides only a single group of chemicals
- Due to other toxic exposures and combination effects an extra uncertainty factor of 10-100 is needed (Backhaus, 2010)
- Synergetic effects of natural stressors like pathogens add to this need (Holmstrup, 2011)

What about the standard UF's?

- Generally an UF of 100 used to calculate an ADI
- Interspecies UF of 10 creates by large not sufficient protection (Schneider, 2005 >10, Falk-Filipsson, 2007 > 15)
- Intraspecies 10 is not protective enough for the vulnerable (Dorne, 2001).

Probabilistic on food residues?

- Given the enormous uncertainty probabilistic on food is not very relevant to the protection of humans
- Given the high level of protection required in legislation, probabilistic is a dangerous tool allowing an easy “acceptable” level
- Food sourcing is no tombola, regulated chains (retail with X% MRL) versus non-regulated market place.

Accounting for combination toxicity?

- Quantitative approach is an illusion
- Second best is deterministic approach with a large UF (1000 - 10.000) on LOEL/NOEL or RPF
- Probabilistic could create false illusion of safety

Precautionary principle

- Why exactly do we allow residues in our food?
- Half of the food is already without residues, or at least $<LOD$
- Crop protection methods to ensure lack of residues in food are available
- Discussion on “acceptable” level is futile