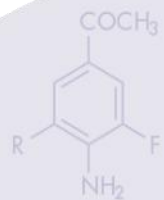


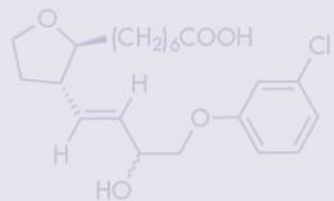
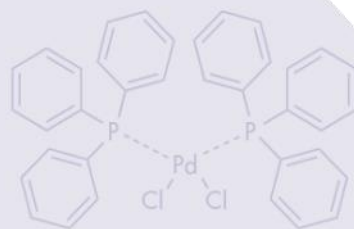
Performance

Dedication

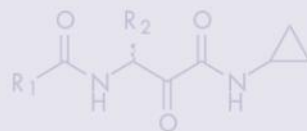


Integrity

Development



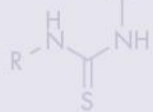
NCK



Passion

Minimized risk

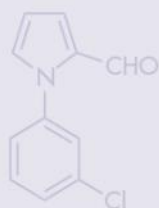
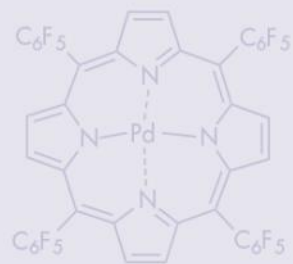
Focus



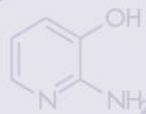
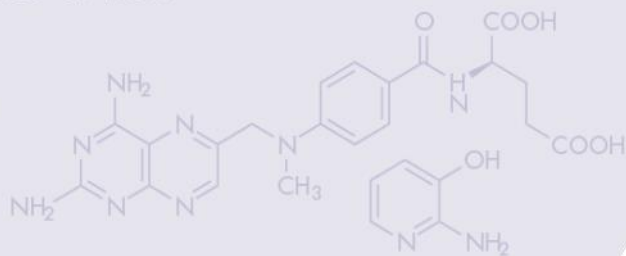
BRIDGING THEORY AND KNOW-HOW



Life science



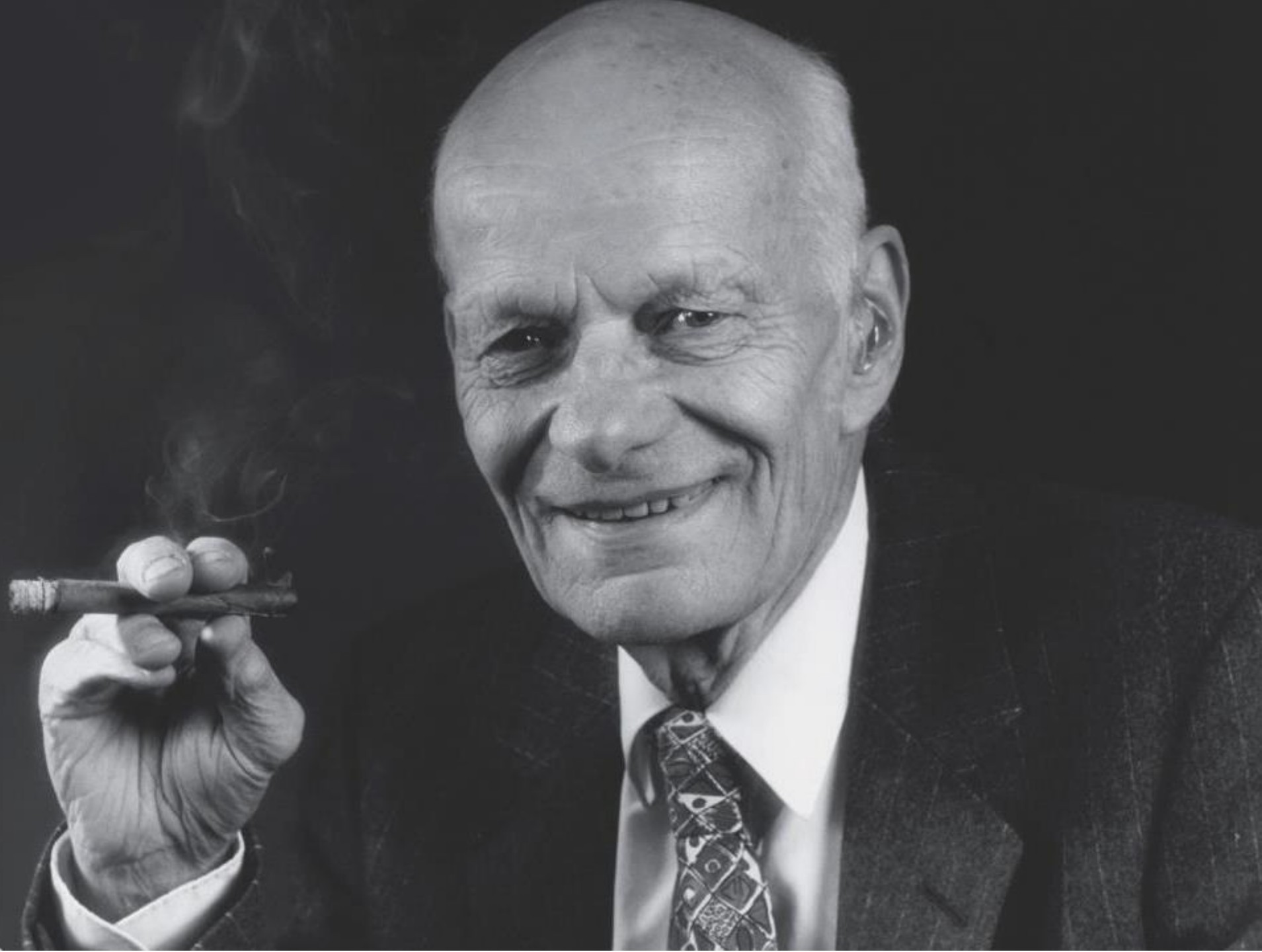
- science at work



Progression

SMALL MOLECULE API PROVIDER - WITH +65 YEARS' EXPERIENCE

Jørgen Godt Olsen, Executive Vice President



NCK facility overview

- labs, offices, ware houses and pilot plant



NCK facility overview

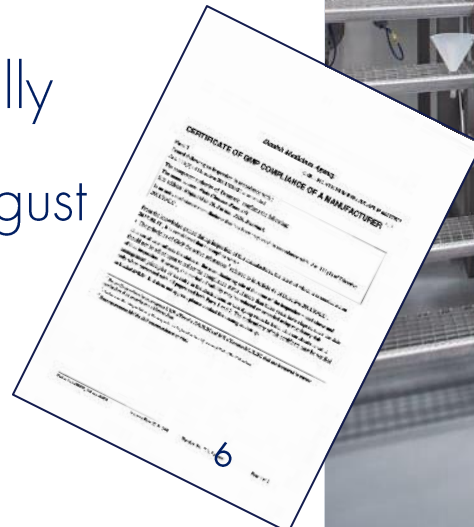
- New pilot plant



New pilot plant

- status....

- ❖ Two large suites is fully operational for GMP,
 - ❖ One equipped with 2 x 250 L reactors
 - ❖ One equipped with 1 x 250 L reactor
- ❖ The small suite, with a 40 L and a 70 L reactor, and one additional large suite, will be operational in the near future
- ❖ The facility was successfully inspected by the Danish Medicines Agency in August 2020



NCK offers

– different areas of experience

- ❖ *APIs, advanced intermediates, novel excipients and vaccine adjuvants*
 - ❖ Small scale non-GMP and cGMP manufacturing (<20 kg campaigns)
 - ❖ Process optimization for late stage and large scale projects
 - ❖ PAR / FAT (Process acceptance ranges / fate and tolerance)
-
- ❖ Well established virtual Audit platform

NCK chemistry experience

– highlights

- ❖ APIs, advanced intermediates, novel excipients and vaccine adjuvants
- ❖ Organometallic reactions, Suzuki couplings (residual Pd removal), enzymatic transformations, borane reductions, hydrogenations, enantiomeric resolutions and fluorination
- ❖ Large scale
 - ❖ Flash Chromatography and
 - ❖ Low Pressure Reverse Phase Chromatography



Chemistry experience

- Novel excipients and vaccine adjuvants

NCK has vast experience with process development and manufacture of novel excipients and vaccine adjuvants at both lab scale (g) and production (kg) scale. Some examples could be:

- ❖ Lipids of various lengths attached to e.g.
 - ❖ PEG
 - ❖ Different functional groups e.g. amine, sulphur, amino acids, etc.
- ❖ Often non crystalline compounds with no or very little UV activity

NCK offer custom manufacturing of these type of compounds at both non-GMP and GMP conditions

Chemistry experience

- nucleosides, nucleotides and phosphoramidites, an area of growing interests

NCK has vast experience with process development and manufacture of nucleosides, nucleotides and phosphoramidites at both lab scale (g) and production (kg) scale. Some examples could be:

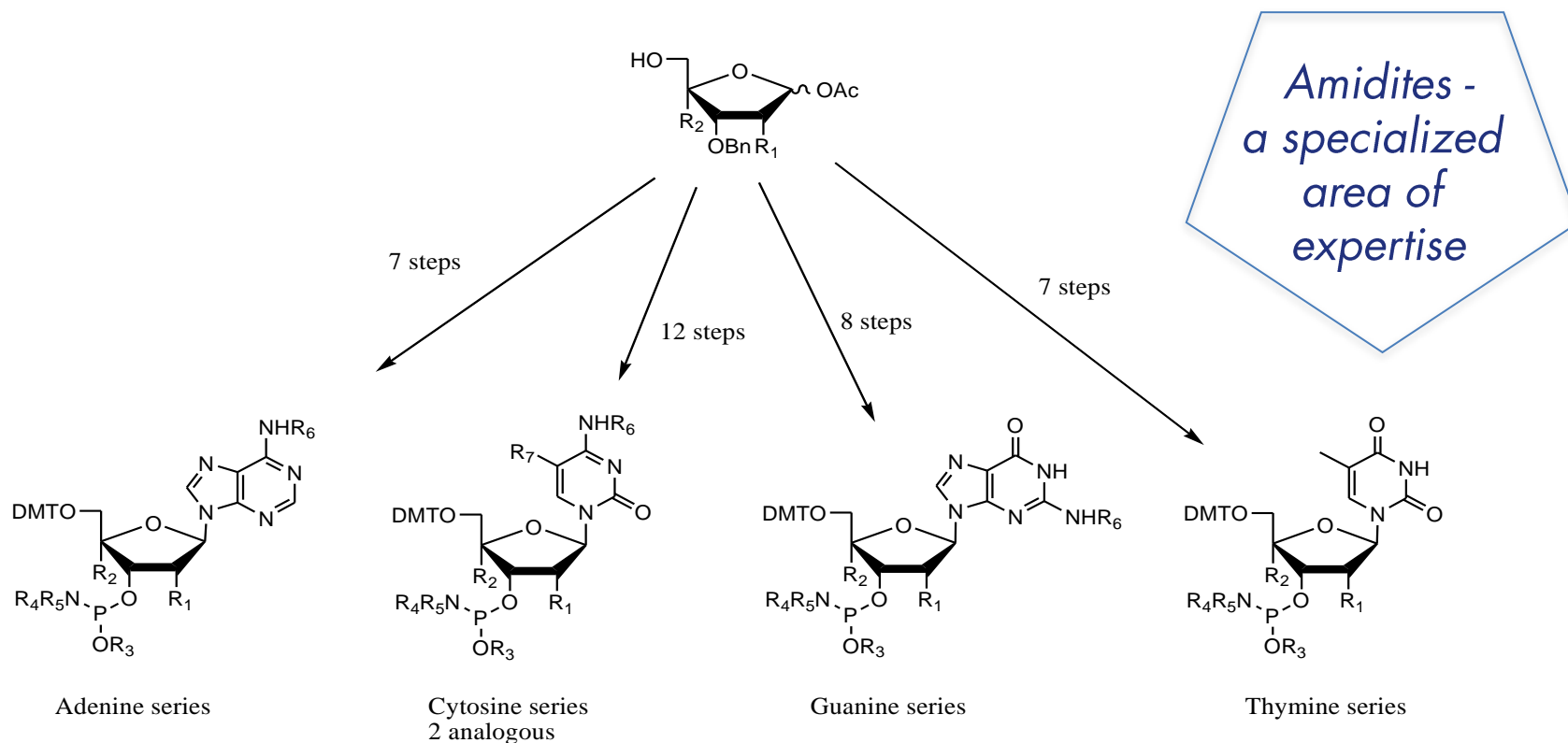
- ❖ Monomers, dimers and trimers
- ❖ Cyclic nucleosides and nucleotides
- ❖ Thio- nucleosides and nucleotides
- ❖ Chiral phosphor nucleosides and nucleotides

NCK offer custom manufacturing of these type of compounds at both non-GMP and GMP conditions

Chemistry experience

- Nucleosides, nucleotides and phosphoramidites, an area of growing interests

Examples of amidites manufactured at kg scale at NCK

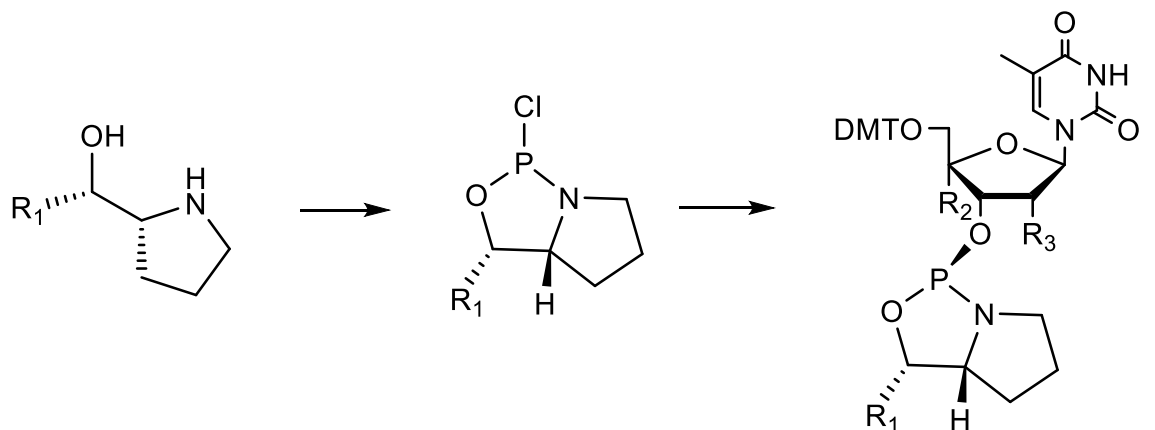


all compounds made in kg scale

Chemistry experience

- Nucleosides, nucleotides and phosphoramidites, an area of growing interests

Examples of chiral amidites manufactured at NCK

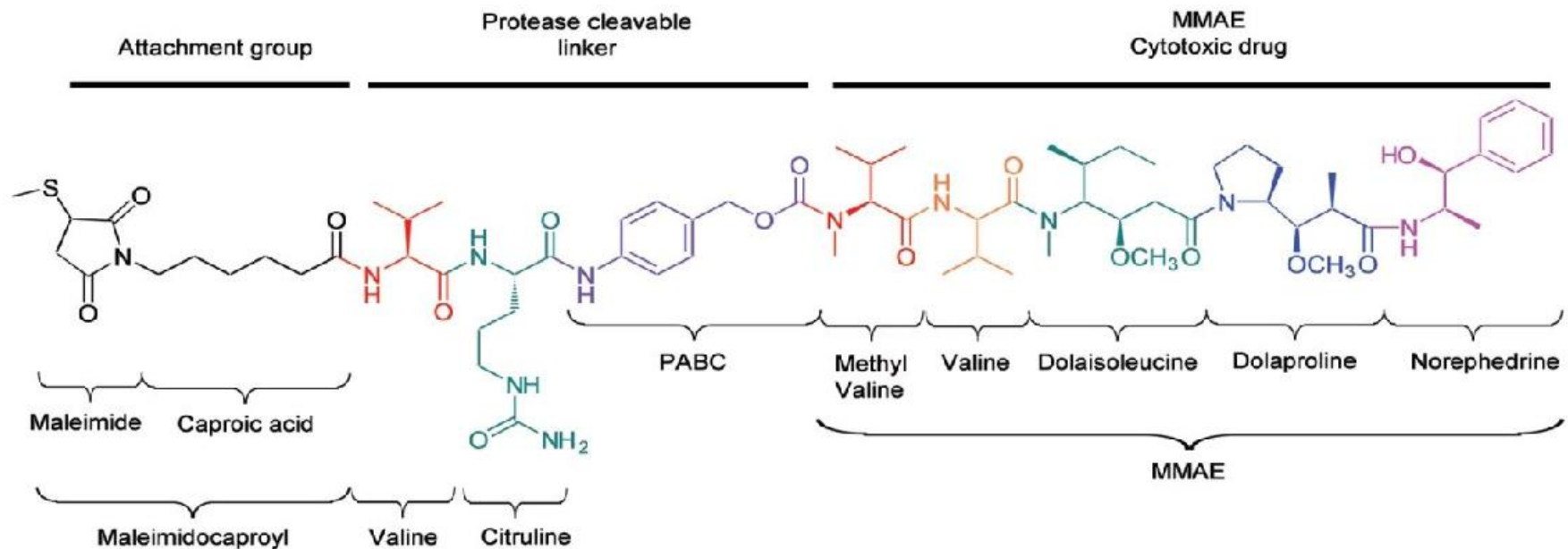


Thymine series - 4 variants

Chemistry experience

- ADC war head and linkers

- Example of inhouse experience (custom synthesis of proprietary compounds)



What is a good process

– fit to purpose

Pre-clinical and early clinical material

- ❏ Reproducible
- ❏ Robust
- ❏ Safe

Long term process

- ❏ Technically feasible
- ❏ Economical
- ❏ Green



But the typical projects are

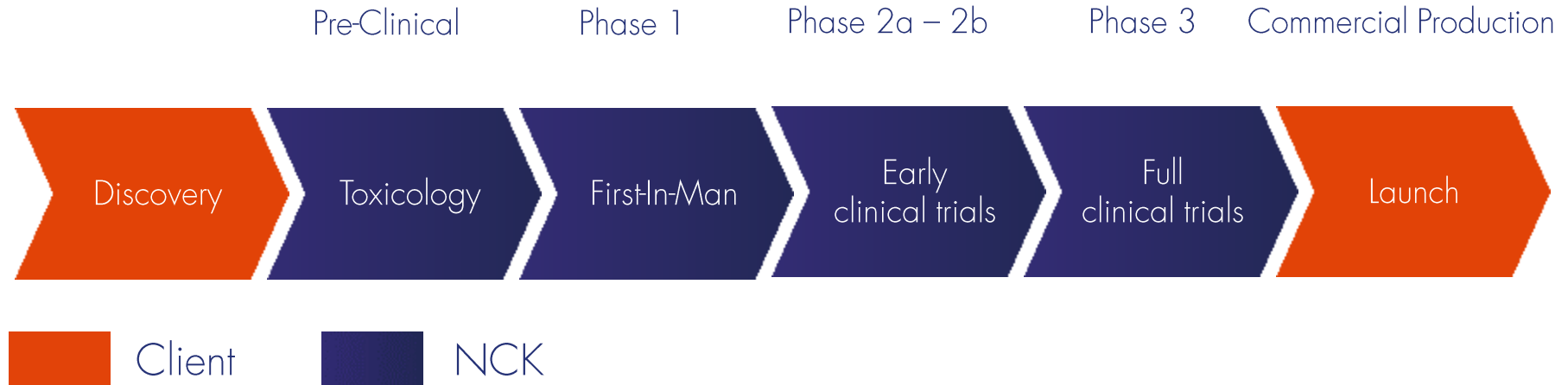
- NCE projects / CMC package

- ❖ Process development / scale-up
- ❖ Pilot scale syntheses
- ❖ API manufacturing according to cGMP
- ❖ Analytical development and validation
- ❖ Reference standard
- ❖ ICH stability studies
- ❖ Genotoxic impurities / method development
- ❖ Technology transfer to third party



Imagine if...

- your new potential drug were to enter the development stage..



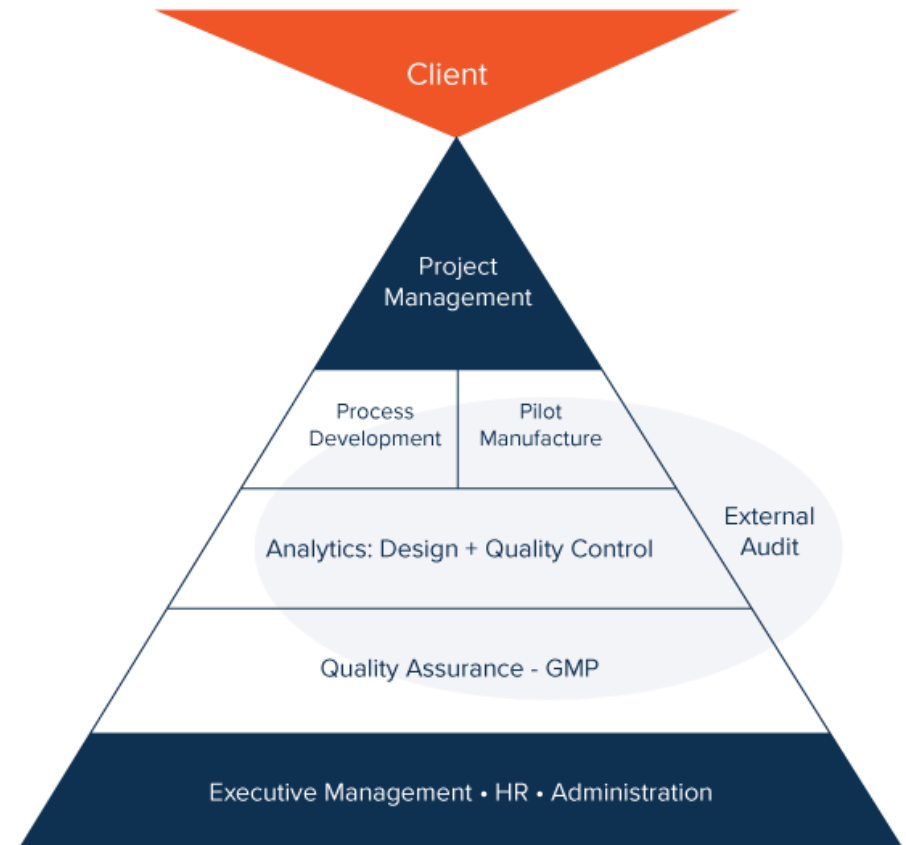
..you will need a trustful CMC partner who can support, guide and

- ✧ structure a project to meet the various milestones
- ✧ provide the right solution in high quality
- ✧ deliver with the world's best track record

NCK offers projects

- in a well organized matrix organization, with..

- ❏ a unique project management system – the key to success
- ❏ 35 dedicated people
- ❏ clear line of communication through project management
- ❏ with seamless progression throughout project milestones



Two synthesis laboratories

- process development

Small scale non-GMP production

🏠 > 9,200 Reactions performed,

all old lab note available

🏠 18 Fume cupboards

🏠 4 Walk-in hoods

🏠 Up to 20 liters equipment



Analytical laboratory



Analytical laboratory

- main equipment

❖ HPLC (DAD, MS and CAD)

- ❖ 9 Agilent 1200/1260
- ❖ 2 Dionex Ultimate 3000
- ❖ 4 Agilent 1290 UHPLC
- LC/MS systems
- ❖ MS/MS Bruker Compact
- ❖ Agilent 6120 Single Quadropole

❖ GC (FID/MS)

- ❖ 2 Thermo Scientific Trace 1310 (incl. Triplus 300 headspace and ISQ QD MS detector)
- ❖ 1 Agilent 6890

❖ IC (CD)

- ❖ Thermo Scientific ICS 6000



Pilot plant "Rugmarken 24"

- original plant

- ❖ Prepared for five production lines (40-250 L reactors)

 - ❖ Temperature range from -25°C to +140°C

- ❖ 160 L Cryogenic reactor (-80°C)

Other utilities

- ❖ Centrifuges and pressure filters

- ❖ Preparative LPLC and HPLC

- ❖ Flash chromatography

- ❖ Separate drying / final handling rooms



Pilot plant "Gammelgårdsvej"

- new plant

- ❖ Prepared for five production suites (40-250 L reactors). Two suites currently in use

- ❖ Temperature range from -25°C to +120°C

Other utilities

- ❖ Centrifuges and pressure filters
- ❖ Preparative LPLC and HPLC
- ❖ Flash chromatography
- ❖ Separate drying / final handling rooms



Small lab "Rugmarken 26"

GMP for <1 kg campaigns

- ❖ Prepared with
 - ❖ One walk-in hood
 - ❖ One fume cupboard
- ❖ Small scale GMP dedicated equipment will be used for GMP campaigns



Quality management system

- most documents in English

Quality Manual with descriptions of:

- ✧ Quality Management System
- ✧ Quality Policy
- ✧ Responsibilities

Site Master File with specifics on (GMP operations):

- ✧ Quality assurance
- ✧ Production
- ✧ Quality control

SOP system >200 SOPs, 5 sub-categories:

- ✧ Quality assurance
- ✧ Materials handling
- ✧ Quality control
- ✧ Production
- ✧ Engineering and maintenance



7 Good reasons...

....to work with NCK

- ❖ cGMP manufacturing
- ❖ Unique project management system
- ❖ Highest level of communication
- ❖ Fixed price quoting and payment on delivery
- ❖ Understanding the importance of a “true partnership”
- ❖ Documented track record of keeping deadlines
- ❖ Established Partnerships from Discovery to commercial manufacturing

“...the sleep at night factor”

Global presence

- worldwide representation

