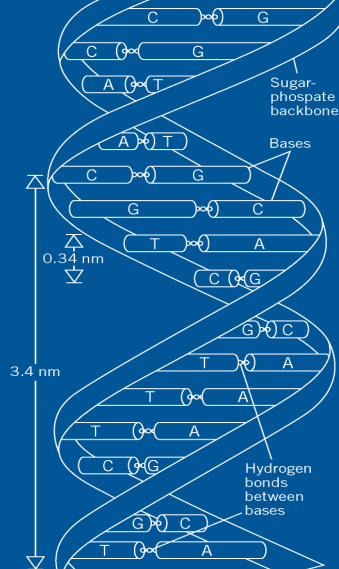




To EC or not to EC...that is the Question!

Roche Products Ltd

Hiren Naygandhi

Acknowledgements: Colin Brown, Jim Elder & James Gallagher

Contents

➤ **Introduction**

➤ **What is Executable Code?**

✓ **Guidelines**

✓ **Why do it?**

➤ **What we did**

✓ **Process Overview**

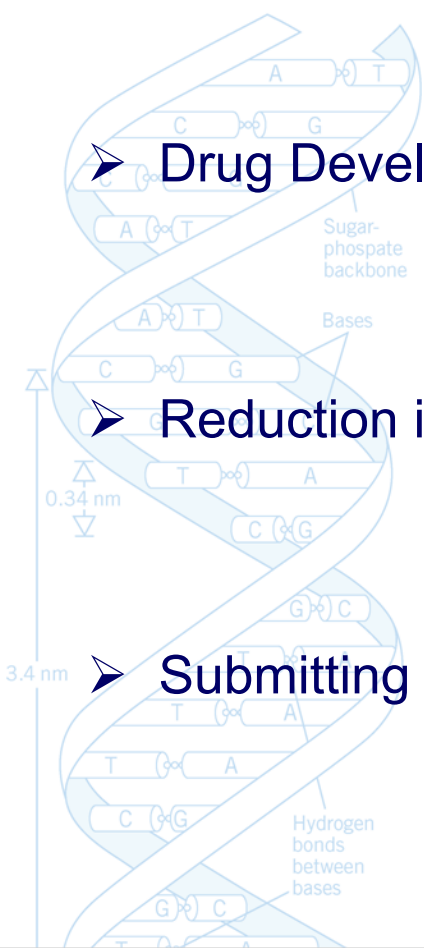
✓ **Methodology**

✓ **Challenges**

➤ **Feedback**

➤ **Conclusion**

Introduction



➤ Drug Development

➤ Reduction in amount of time taken in drug approval process

➤ Submitting Executable Code (EC) may be a way to achieve this

What is EC?

➤ Essentially, our programs!

➤ Our definition:

✓ Standalone – no external dependencies e.g. macros, formats.

✓ Produce one output – per program

✓ Compatible with Windows SAS

➤ Provides a window on the detailed steps taken to produce the analysis

Guidelines

➤ FDA: Not Mandatory

➤ Unclear guidelines:

✓ What to submit: efficacy and/or safety; analysis and/or TFLs

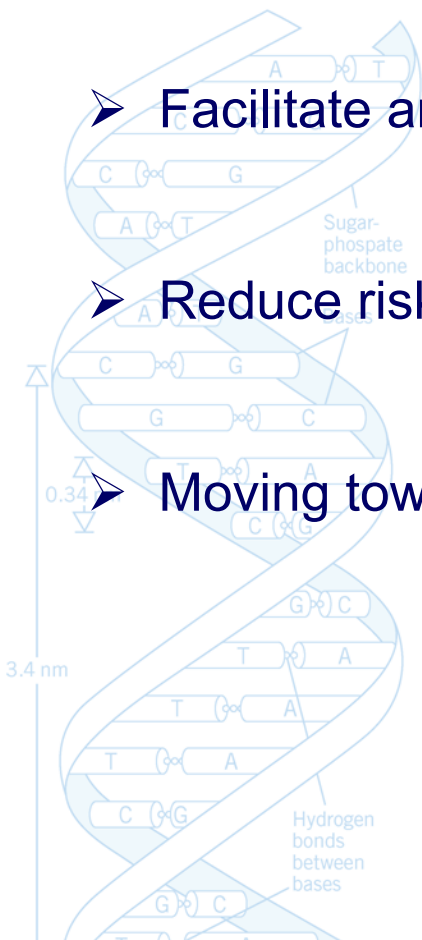
✓ How many programs

✓ New process within Legacy Roche, hence little experience

➤ If not mandatory, why go through the effort?

Why do it?

- Facilitate an accelerated decision making process
- Reduce risk of program-specific requests
- Moving towards globalized standards



What we did

➤ Need arose:

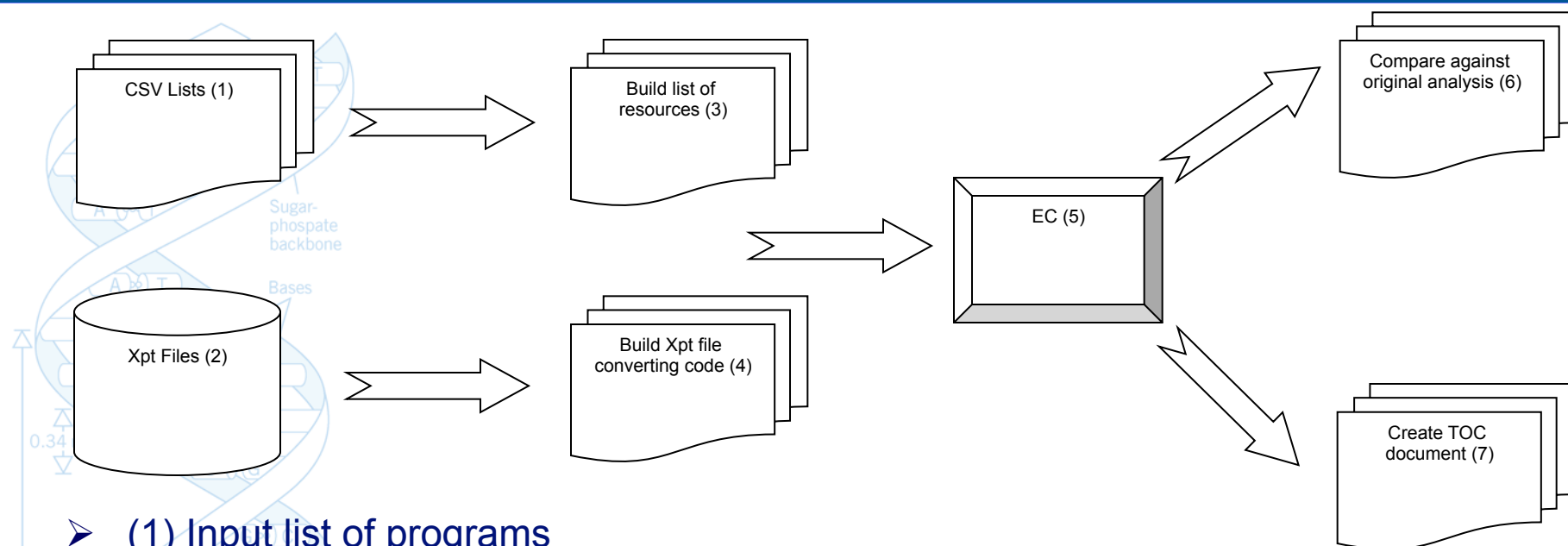
- ✓ Global
- ✓ Submission

➤ EC requirements

- ✓ Standalone – macros/formats being called externally
- ✓ Produce one output – programs produced multiple outputs
- ✓ Compatible with Windows SAS – used UNIX platform

➤ Tool was required

Process Overview



- (1) Input list of programs
- (2) Input list of datasets
- (3) Build list of resources (RTRACE)
- (4) Build Xpt → Dataset conversion code
- (5) Consisting of: Header; libnames*; datasets; compile macros; code; output
- (6) QC
- (7) Documentation
- * Manual step incl. Formats

Methodology

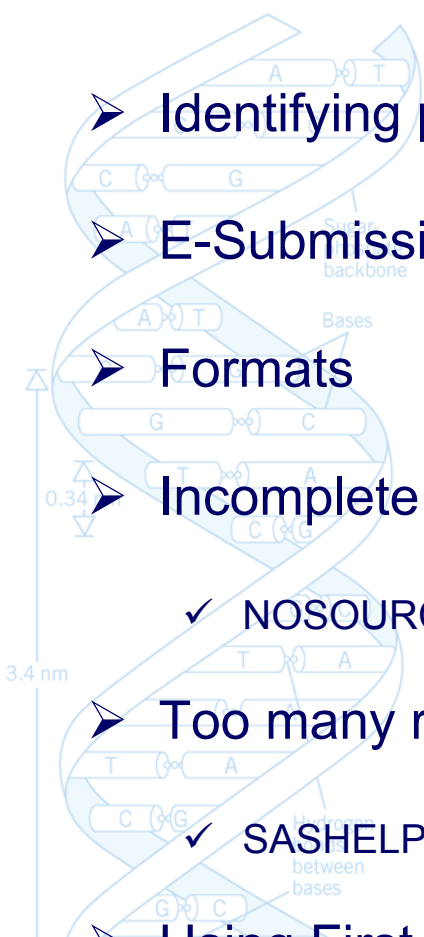
➤ MPRINT

- ✓ Generate program from the contents of the LOG
- ✓ Required all external dependencies to be within a macro
- ✓ Considered too complex and time consuming

➤ RTRACE

- ✓ Generate list of resources read from SAS
- ✓ List would be used to generate EC
- ✓ Considered as most time-saving option

Challenges

- 
- Identifying programs required for submission
 - E-Submission requiring further datasets
 - Formats
 - Incomplete resources
 - ✓ NOSOURCE
 - Too many resources
 - ✓ SASHELP.VCOLUMN
 - Using First-line reporting programs

Feedback

➤ Metrics

- ✓ Took 4 weeks to build tool
- ✓ Included submission of 6 programs
- ✓ Recommended timelines to develop 2 programs per day

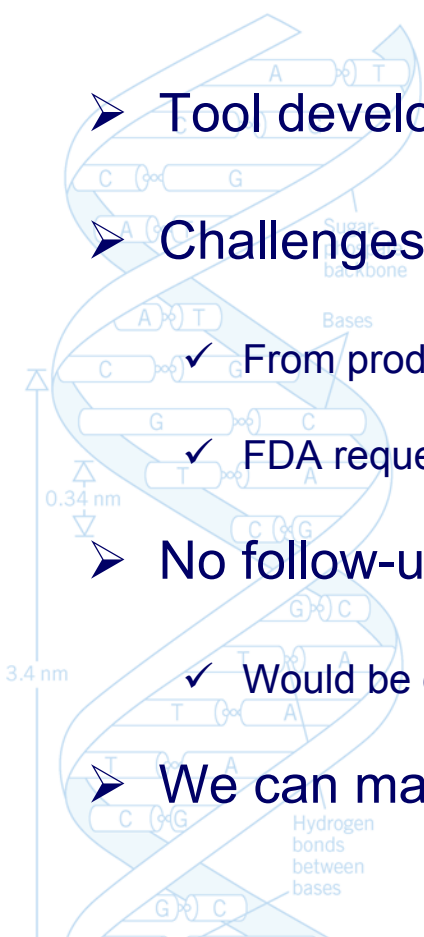
➤ Feedback

- ✓ EC tool used in 6 submissions to FDA
- ✓ No feedback received – no news is good news 😊

➤ Future

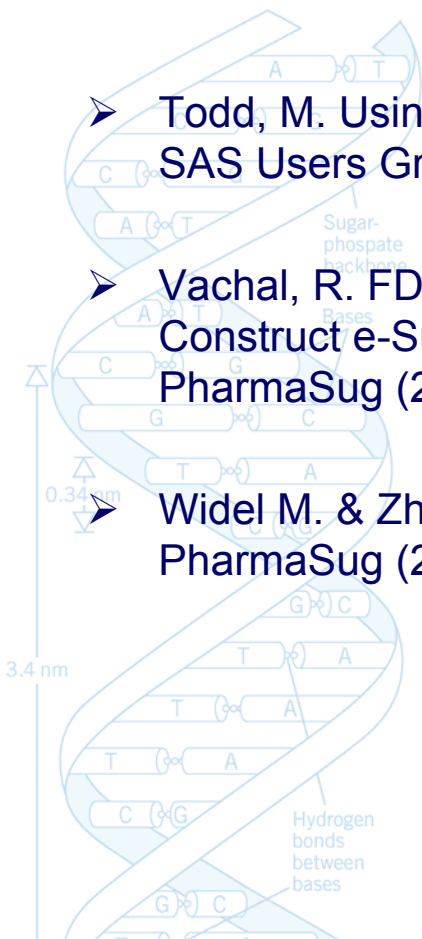
- ✓ Global tool to incorporate EC functionality

Conclusion

- 
- Tool developed to provide EC in submissions to FDA
 - Challenges faced, however, proved to be time-saver
 - ✓ From producing EC manually
 - ✓ FDA requests
 - No follow-up comments from FDA
 - ✓ Would be desirable to receive feedback
 - We can make a difference

Further Reading

- Todd, M. Using SAS Enterprise Guide to Create Standalone Programs, North East SAS Users Group (2010)
- Vachal, R. FDA Reviewers as Ultimate End Users: Using the SAS System to Construct e-Submissions that Actually Facilitate the NDA / BLA Review Process, PharmaSug (2001)
- Widel M. & Zhou. J. Techniques for creating reviewer-friendly SAS programs, PharmaSug (2006)



Questions

