

## **AOP Reports: A New Way of Publishing AOPs in Peer-Reviewed Scientific Journals**

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SETAC NORTH AMERICA 42<sup>ND</sup> ANNUAL MEETING:

ADVERSE OUTCOME PATHWAYS - DEVELOPING A COMMUNITY OF PRACTICE

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# OECD AOP development programme

<https://www.oecd.org/chemicalsafety/testing/adverse-outcome-pathways-molecular-screening-and-toxicogenomics.htm>

## The AOP Development Programme

The AOP development programme is overseen by the extended Advisory Group on Molecular Screening and Toxicogenomics (EAGMST). EAGMST members are nominated by their [National Coordinators](#); they play an active role in the development of AOPs, as well as in the internal review process.

1. Add AOP to AOP development work plan
2. Develop AOP in AOP-wiki according to the OECD handbook
3. Scientific review of the AOP
4. Endorsement and publication of the AOP in OECD series on AOPs

## Reports Summary

Report	Count
AOPs	375
Key events	1495
KE relationships	2077
Stressors	671

OECD Endorsed

16

OECD Under review

28

OECD Under development

47

**TOTAL**

**91 (24%)**

# Challenges

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- AOP authors
  - Professional recognition for scholarly investment in formal AOP development
  - Incentivize more contributions to the AOP-wiki
  - Encourage completion of initiated AOPs
- OECD
  - AOP Development Programme has grown significantly
  - Support for managing and coordinating the scientific review process

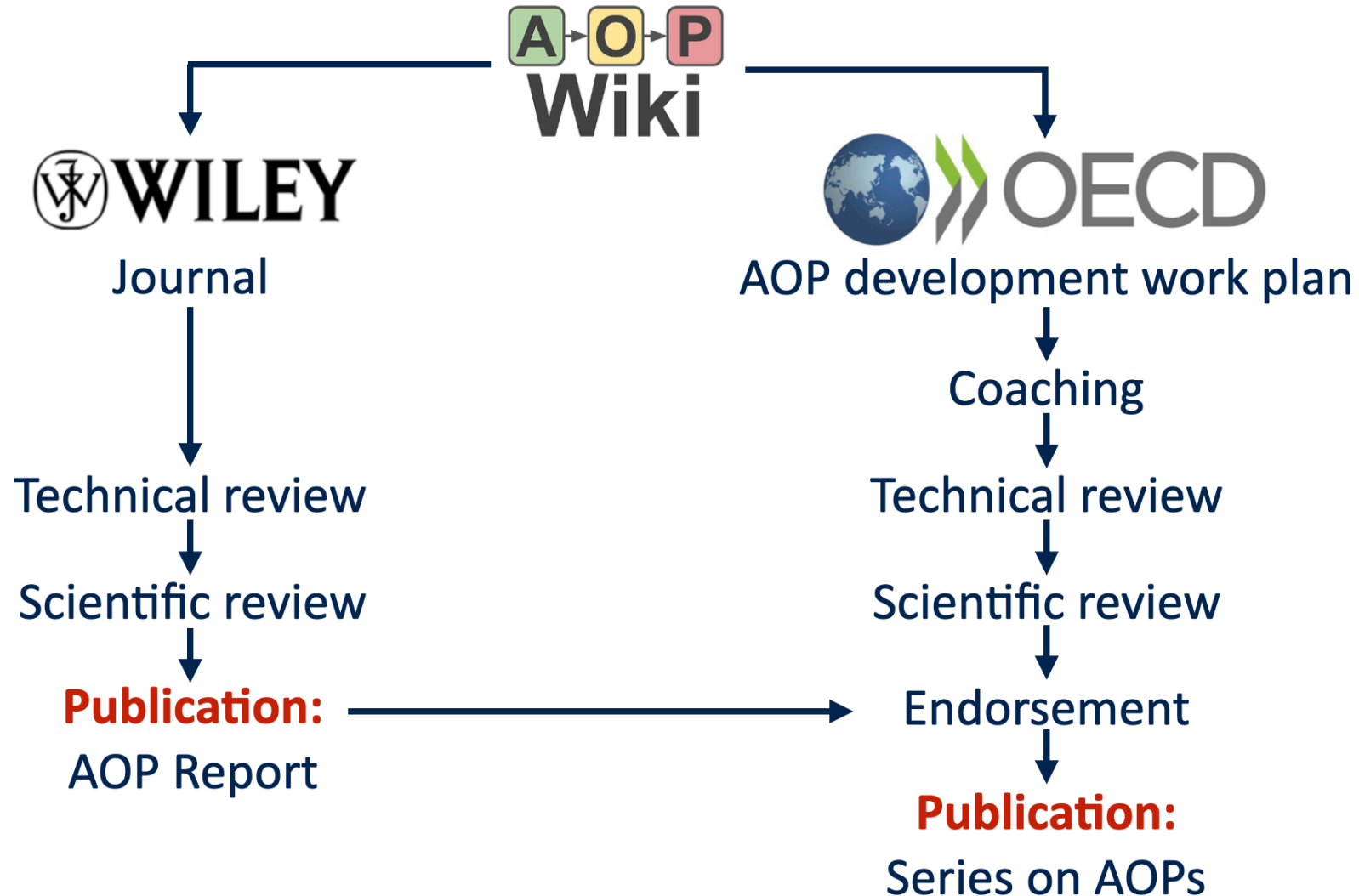
# Solution

## Co-publication of AOPs in scientific journals

- **Authors:** peer-reviewed publication
- **OECD:** scientific review through journals' editorial infrastructure
- **Journals:** review-like articles with high citation potential



# Publication model



# Memorandum of understanding

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## Sustainable link between journals and OECD AOP development programme

- Technical requirements for AOP development
- Principles of AOP review
- Joint publication strategy
  - AOP-wiki content
  - Journal article
  - OECD series on AOPs
- Communication between journals and OECD

# AOP Reports: two components

## Journal article

- 1. Introduction and background
- 2. Brief AOP description
- 3. Overview of AOP development approach
- 4. Summary of scientific evidence assessment
- 5. Potential applications



## AOP in AOP-wiki

- 1. KE pages
- 2. KER pages
- 3. Overall AOP assessment

Screenshots of the AOP-wiki interface. The left screenshot shows the 'AOP: 323' page for 'PPARalpha Agonism Impairs Fish Reproduction', including a graphical representation of the AOP and a list of authors. The right screenshot shows the 'Key Event Overview' page for the same AOP, displaying a table of key events and their relationships.

Time	Event	Link	Link	Link	Link
48 hours	PPARalpha Agonism	Link	Link	Link	Link
7 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link
21 days	PPARalpha Agonism	Link	Link	Link	Link



# Journal review process

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- Review consists of two components
  - AOP-wiki
  - Journal article
- Following the principles in the OECD guidance for the scientific review of AOPs
  - Independent: free of conflicts of interest
  - Transparent: names and comments of reviewers are disclosed
  - Cooperative: collective reviewer expertise should cover the scope of the AOP
  - Standard set of charge questions

# Implementation by journals

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- Handling editors should have AOP experience
- Reviewers collaborate as a team over a longer time period (e.g. 6-8 weeks)
- Editors and journal implement all necessary OECD requirements
- OECD is notified of accepted articles
- Currently adopted by
  - Environmental Toxicology and Chemistry
  - Environmental and Molecular Mutagenesis

# Published examples

## Environmental Toxicology and Chemistry

### AOP 360

#### AOP Report: Inhibition of Chitin Synthase 1 Leading to Increased Mortality in Arthropods

Simon Schmid, You Song, Knut Erik Tollefsen 

First published: 05 April 2021 | <https://doi.org/10.1002/etc.5058>



Project 1.94: Inhibition of Chitin Synthesis and Chitin Degradation in Arthropods

Lead: [Norwegian Institute for Water Research](#)

Inclusion in work plan: 2021

### AOP 263

#### AOP Report: Uncoupling of Oxidative Phosphorylation Leading to Growth Inhibition via Decreased Cell Proliferation

You Song , Daniel L. Villeneuve,

First published: 20 August 2021 | <https://doi.org/10.1002/etc.5197>



Project 1.92: The AOP for mitochondrial dysfunction in aquatic organisms

Lead: [Norwegian Institute for Water Research \(NIVA\)](#)

Inclusion in work plan: 2021

# Acknowledgements

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Environmental  
Toxicology and Chemistry



Environmental and  
Molecular Mutagenesis



Environment and  
Climate Change Canada