Publishing Linked Data with Nanopublications

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Provenance-Aware Data Publishing with Nanopublications

http://nanopub.org / @nanopub_org
Provenance-Aware Data Publishing with Nanopublications

Nanopub0001

Assertion:

\[ \text{opm:wasDerivedFrom d:DataSourceX} \]

Provenance:

\[ \text{ns1:mosquito \ ns2:malaria \ ns3:transmission} \]

Publication Information:

\[ \text{dc:created “2013-01-01”} \]
\[ \text{pav:createdBy p:Isabelle_Dubois} \]

http://nanopub.org / @nanopub_org
Example: Nanopublication for MODS Record

:head {
  : a np:Nanopublication ; np:hasAssertion :assertion ;
  np:hasProvenance :provenance ; np:hasPublicationInfo :pubInfo .
}

:assertion {
  :dataset a dctypes:Dataset ;
  dct:title "Activation pathway of Src kinase reveals intermediate states as targets for drug design" ;
  dct:description "This dataset contains following items: 1) MD Simulation trajectories (~23000 Trajectories for a total of 19 ps of simulation) 2) The modified reaction coordinate of Src kinase with a total of 50000 frames and a duration of 100 microseconds. 3) 100 microseconds long trajectory with 20000 frames at an interval of 5 ns generated using the MSM." ;
  dct:creator [ a foaf:Person ; foaf:name "Shukla, Diwakar" ] ;
  dct:creator [ a foaf:Person ; foaf:name "Meng, Yilin" ] ;
  dct:creator [ a foaf:Person ; foaf:name "Roux, Benoit" ] ;
  dct:creator [ a foaf:Person ; foaf:name "Pande, Vijay" ] ;
  dct:license <https://creativecommons.org/licenses/by-sa/3.0/> ;
  dct:rights "User agrees that, where applicable, content will not be used to i
}

:provenance {
  :assertion prov:wasDerivedFrom <http://purl.stanford.edu/cm993jk8755.mods> .
}

:pubInfo {
  : prov:wasAttributedTo orcid:0000-0002-1267-0234 .
}
Trusty URIs are URI references that include cryptographic hash values to make digital artifacts like nanopublications ...

Verifiable + Immutable + Permanent

http://example.org/r1.RA5AbXdpz5DcaYXCh9l3eI9ruBosiL5XDU3rxBbBaU070.trig
Decentralized Nanopublication Server Network

Nanopublications with Trusty URIs

Publication

Propagation / Archiving

Retrieval

http://npmonitor.inn.ac
Let’s Publish Our Exemplary MODS-Nanopublication!

Give it a trusty URI:

http://example.org/stanford-digital-repository/cm993jk8755.RAxuI9shCHSU
wntUzf6uy7s08nZ6Sug3g7B0sSSmycRbA

Publish it to a server in the network:

http://np.inn.ac/RAxuI9shCHSU
wntUzf6uy7s08nZ6Sug3g7B0sSSmycRbA

And a few minutes later, it is distributed in the network:

http://nanopub-server.ops.labs.vu.nl/RAxuI9shCHSU
wntUzf6uy7s08nZ6Sug3g7B0sSSmycRbA
http://s1.semanticscience.org:8082/RAxuI9shCHSU
wntUzf6uy7s08nZ6Sug3g7B0sSSmycRbA
Defining Datasets with Nanopublication Indexes

Diagram showing relationships between elements (a) through (f), illustrating how datasets are defined with nanopublication indexes.
Some Links

- **Nanopublications**: http://nanopub.org
- **Trusty URIs**: http://trustyuri.net
- **Nanopublication Server Network**: http://npmonitor.inn.ac
- **Interface to validate, “trustify,” and publish nanopublications**: http://nanopub.inn.ac