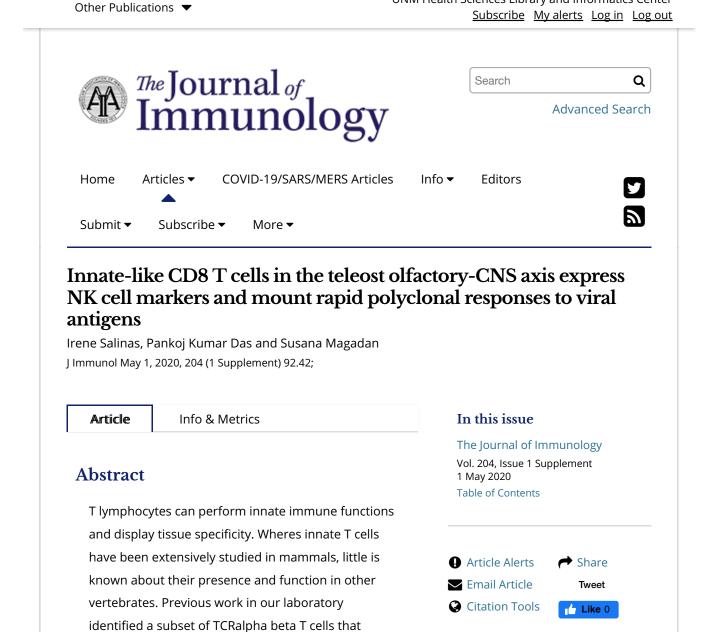
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rapidly infiltrate the olfactory organ of rainbow trout

suggested that these lymphocytes play important

Here we report that CD8 T cells rapidly infiltrate the olfactory organ of rainbow trout not only in response

functions in mucosal innate immune responses.

upon nasal vaccination. This rapid response

to nasal viral immunization but also in response to other nasal microbial immunizations including killed and live bacteria. Nasal delivery of PAMPS such as LPS or poly I:C did not elicit these responses. Further phenotyping of these cells using qPCR and FISH staining indicate that these innate lymphocytes are NK T cells since they express the teleost NK cell markers NCCRP1 and NITR2. Repertoire analyses of infiltrating CD8 T cells showed a public but polyclonal response with 14 amino acid long CDR3 in response to the virus. Our findings represent the first characterization of NK T cells in early vertebrates and underscore the importance of NK T cells at defending the mucosal barriers of vertebrate animals.

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