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# 应用BrdU-Hoechst33258-Giemsa技术对黑斑蛙性染色体的研究

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摘要　黑斑蛙染色体数目为2N=26。利用血细胞培养和骨髓制片及BrdU-Hocchst 33258--Giemsa技术研究表明，黑斑蛙的性别决定为XY 型。其第9染色体可能是性染色体，该染色体长臂近中部SRR区可能是与性别决定有关的区域。该区域在雌性中是同步复制的；在雄性中是非同步复制的，一个比另一个更晚复制。这一复制异态开始于中S期，终止于晚S期。

自本世纪三十年代以来，已报道的两栖类的核型已有300余种［15]。但除少数例外110,15,23,241，一般均未发现过异型的性染色体。由于两栖类染色体DNA含量较高〔6，给分带技术的应用带来一定的困难。因此在分带工作中成功的例证也较少［I3-5,20-25]。蛙科（Ranidae）动物已有核型报道的有40余种，其中蛙属(Rana)约30余种。黑斑蛙(Rana nigromaculata）的核型已由［riki (1932), Kawamura (1939）, Seto"9，和国内学者吴政安[1]进行了研究，而有关分带工作及性别决定机制、性染色体，尚未见有报道。

Brdu-Hoechst 33258-Giemsa技术是近10年来发展的研究染色体复制动力学的有效方法[7-9,11,13,14,24]。特别是用于研究同源性染色体的复制状况，取得了较其它方法难于得到的结果[4,5,24]。 Schempp和Schmid[24]，首次利用该法在食用蛙(Rana esculenta)染色体上获得了成功，通过复制顺序的研究确定了第4染色体为其性染色体。

本文以培养的淋巴细胞和骨髓为材料，利用BrdU复制带技术和C带技术，研究了黑斑蛙的复制顺序及C带区分布。结果表明，它的性别决定为XY型，并有复制异型的性染色体存在。

关键词

分类号

# A Study of Sex Chromosome in Rana nigromacul ata by BrdU一Hoechst 33258-Giemsa Technique

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**Abstract**

<FONT face=Verdana>The time sequences of DNA replication in tl.e chromosomes and C bandino pattern of 4 male and 6 female common frogs R. nigromaculata were studied by a modified BrdU-Ho-e·chst33258-Giemsa technique, using the asynchronized lymphocytes cultivated in vitro and bone marrow preparations. It was found that there was a diploid chromosome complement of 26 in R. mgromaculata, the karyotype consisted of 5 pairs of large homologue in which the No. 4 pair was submed'ian, 4 pairs median, and S pairs of smal ones in which 4 pairs were median and the rest submedian without terminal centrics. Its total arm count was 52.<BR>　Sex determination in R. nigromam?ata was of the XX/XY type, chromosome pair No. 9 was probably the sex chromosome, in which certain distinct r·egions located in the long arm were late in replication in the karyotypeis of all the observed individuals.We therefore called this region the sex related region（SRR）. This region was replicated synchronously in the female animal but asynchronously in the male, i.e., one of tvm SRRs in the male was replicated later than the other.<BR>　The replicatioe heteromorphism began front the middle S phase of the cells cycle and came to an end in the late S phase. Both the above-mentioned SRRs were with C-banding dark staining and no difference was seen between females and males. In this aspest no sex related heteromorplusm between homologues could be found in the other chromosomes. However, whether this designated SRR is really related to the sex determination or not, awaits further investigation with sufficient materials.</FONT>

**Key words**

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