first by LIDDLE[6,7] and was confirmed by other authors[8]. Our results direct attention also from another aspect, namely that of the significant steroid metabolization in pulmonary tumour tissue to the endocrine involvement of pulmonary tumours. Under in vitro conditions only the renal tissue (apart from the liver) is able to perform a transformation of such extent.

According to JENKINS[9] data, all other organs examined possess this ability only to a very slight degree[10].

Zusammenfassung. Bösartige Lungengeschwulstgewebe verschiedener Zelltypen wurden mit Hydrocortison 1 ^{3}H, 2 ^{3}H inkubiert. Die freien, markierten Steroide wurden extrahiert, chromatographisch getrennt und identifiziert.

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Peroxidase Isoenzyme Associated with the *Aegilops umbellulata* Chromosome Segment Transferred to Chinese Spring (*Triticum aestivum*)

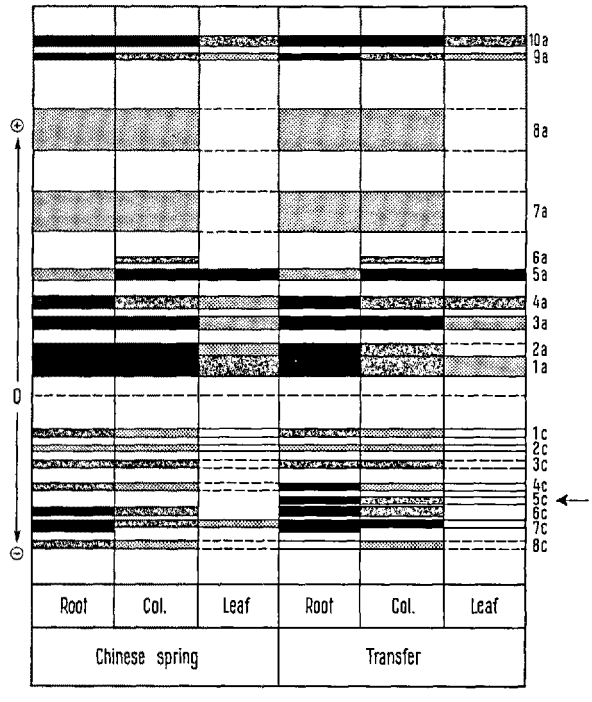
The resistance to leaf rust (*Puccinia recondita* Rob. tritici) transferred from *Aegilops umbellulata* as a translocation into spring bread wheat (*Triticum aestivum*), by SEARS[1] was shown by SOLIMAN et al.[2] to be a simply inherited character. SEARS[3] had also shown that this translocation was on chromosome 6B and that the translocated chromosome segment was small and terminal.

By the use of polyacrylamide gel electrophoresis techniques, BHATIA and SMITH[4] had found that the leaf protein extracts from 12-day-old seedlings of Transfer (IC 13296) had 2 additional protein bands as compared to the parent variety, Chinese Spring. They had interpreted the additional protein bands to be causally related to the genetic information carried by the introgressed *umbellulata* chromosome segment into Chinese Spring. Studies were therefore undertaken using horizontal gel electrophoretic techniques to study the peroxidase isoenzyme differences in different tissues of seedlings of Chinese Spring and Transfer (IC 13296).

The seeds were germinated in petri dishes on wet filter paper in dark at 20 °C for 48 h and later grown under continuous illumination in a control environment. The seedlings were harvested after 8 days. The leaf, coleoptile, and the roots were separated for each of the seedlings, and similar tissues bulked together from all the seedlings in a sample. The tissue samples were either used as fresh or were frozen at − 10 °C for later use. 1 g of tissue was ground with 100 mg of acid washed sand and 0.1 ml of a freshly prepared mixture of 2 parts of 12.5% glucose in 0.02*M* Trizma base [*Tris* (hydroxymethyl) amino methane] solution (adjusted to pH 7.5 with HCl), and one part of aqueous solution of 0.8% NaCl + 0.2% $NaNO_3$. The general electrophoretic procedures of BREWBAKER et al.[5] were followed for isoenzyme separation and staining in polyacrylamide gels. The gels were stained for peroxidase employing O-dianisidine as the hydrogen donor.

Peroxidase isoenzymes were detected on both anodal as well as cathodal sides of the gel. The zymogram showing the peroxidase isoenzymes is diagrammatically presented in the Figure.

The isoenzymes on the anodal side of the gel showed variation among the 3 tissues with regard to the intensities



Diagrammatic representation of the peroxidase isoenzymes in the extracts from the root, coleoptile and leaf of 8-day-old seedlings of 'Chinese Spring' and Transfer (CI 13296) carrying *umbellulata* chromosome segment. The additional band in the Transfer tissues is marked with an arrow.

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of the bands, but the number of isoenzyme bands were the same in Chinese Spring and the Transfer for the respective tissues (Figure). The anodal peroxidase isoenzymes were found to be 10 in all, and have been numbered from Px-1^a (the slowest moving) to Px-10^a (the fastest moving). The isoenzyme Px-6^a was found to be specific to the coleoptile in both samples. In general the roots had the highest peroxidase activity of the isoenzymes, and the leaf tissue showed the lowest activity.

The cathodal side of the gel showed interesting differences in the number and intensities of isoenzyme bands. In total there were 8 peroxidase isoenzymes which were found to have moved towards the cathodal side. The isoenzymes are numbered from Px-1^c to Px-8^c, starting from the origin. The isoenzyme Px-6^c was found to be present in the root and coleoptile, but was absent from the leaf tissue of both Chinese Spring and the Transfer. The presence or absence of one or more isoenzyme bands from one of the tissue types from the seedling indicates that the isoenzymes give a good measure of changing gene function, and in the words of MARKERT[6], 'provide some insight into the regulation of gene function which leads to the synthesis of these various proteins at the right time and place and in the correct proportion to serve the needs of the organism'.

The most characteristic feature was the absence of isoenzyme Px-5^c from all the 3 tissues of Chinese Spring and its presence in the 3 tissues of Transfer. The isoenzyme Px-5^c showed the same degree of band intensities with all the hydrogen donors used. This additional peroxidase isoenzyme Px-5^c present in the tissue extracts of Transfer seedlings also showed poly-phenol oxidase activity when stained for poly-phenoloxidases. Since the conditions for growing the seedlings, preparation of the tissue extracts and gel electrophoresis were uniform for both the samples, the isoenzyme differences observed, between the parent variety Chinese Spring and Transfer with the *umbellulata* chromosome segment, would therefore be the result of the genetic information on *umbellulata* chromosome segment governing the synthesis of this additional peroxidase isoenzyme Px-5^c in all the 3 tissues studied.

At present it is very difficult to correlate the observations of BHATIA and SMITH[4] and the present findings, because of the fact that the additional protein bands observed by BHATIA and SMITH[4] in the leaf extracts of Transfer were anodally moving, whereas the additional peroxidase isoenzyme Px-5^c recorded during the present study was cathodal[7,8].

Résumé. Des essais par électrophorèse à gel avaient révélé dans les tissus de semis de 8 jours du Transfert (IC 13296) la présence d'une isoenzyme de péroxydase, Px-5^c, qui ne se trouve pas chez la variété parente, «Chinese Spring». Il est suggéré que cette isoenzyme basique de péroxydase supplémentaire est le produit de renseignements génétiques transmis par le segment de chromosome de l'*umbellulata*.

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Gene Frequencies of *Pl* Alleles for the Alkaline Phosphatase of Human Placenta in a Random Sample of the Population of Rome

From the results obtained by BOYER in 1961[1] the existence of a polymorphism for alkaline phosphatase of human placenta appeared clearly. Later on ROBSON and HARRIS[2,3] by means of electrophoretic analysis on starch gel at pH 6.0 and pH 8.6, demonstrated the existence of 6 common electrophoretic patterns of placental alkaline phosphatase (approximatively 2% of the placentae showed a different pattern). Their frequencies are in agreement with the hypothesis that they are determined by 3 common codominant alleles (Pl^s, Pl^f, Pl^i) of one autosomal locus *Pl*.

The enzyme is of foetal origin: it is present in the serum of almost all women by the 28th week of gestation and disappears by the 6th week after delivery.

The data of ROBSON and HARRIS, and more recently those of BECKMAN et al.[4,5], show wide interracial variations in the frequency of *Pl* alleles. The biological significance of this polymorphism is not clear: it may be relevant in the problems of maternal-foetal interactions.

In this communication we report the *Pl* gene frequencies observed in a random sample of 175 placentae from single births which occurred in the Roman population between June 1966 and July 1967.

The placental extracts were prepared according to BOYER[6]; the starch gel electrophoresis was carried out according to ROBSON and HARRIS[2], and the enzyme activity was developed according to BOYER[1].

In the Tables I and II are reported the data concerning 172 cases; each of the remaining 3 showed a different uncommon phenotype, a finding that is in agreement with the 2% frequency observed by ROBSON and HARRIS for rare phenotypes.

All of the 6 common phenotypes described by ROBSON and HARRIS were found and showed the frequency expected according to the HARDY-WEINBERG equilibrium

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