させることにより、何らかの神経走行の異常が期待されたが、HE染色、ゴルジ染色などでのこれまでの解析では異常は認められなかった。また、神経学的な所見も無い。ちなみに、本欠損ホモマウスは、胎盤での血栓形成により子宮内発育遅延をおこし、大半が胎生後期に死亡する。

2. GFP-mDia1活性化体を発現させて、speckle解析を行ったところ、このspeckleが細胞内で2μm/secの速度で直線的に動くこと、このmDiaシグナルはアクチン線維のbarbed end端にあり動きはアクチン重合に依存していることが明らかになった。この結果およびこれまで報告された*in vitro*の解析結果から、mDiaがアクチンのburbed endに結合し、そこでのアクチン重合を促進して直線的なアクチン線維の形成に働いていることが*in vivo*で示された。

3. これまで、間期細胞の移動に当って移動方向に伸びる微小管の一部が安定化されること、これがmDiaによることが報告されている。微小管の安定化はこれ以外にも分裂細胞の紡錘体微小管の染色体キネトコアへの結合にも必要である。そこで、後者におけるmDiaの関与について検討した。その結果、mDiaのうち、mDia3がキネトコア構成タンパク質のひとつCANP- Aと結合し分裂期細胞のキネトコアに存在すること、これが無いと、微小管のキネトコアへ安定的な結合が得られず、染色体の配列がおこらず、分裂はprometaphase - metaphase間で停止することがわかった。

E. 結論

本年度の研究から、Rho蛋白による細胞機能制御について新しい知見を得ることができた。これは、神経細胞形態や機能の制御に通じるものであるが、今後これらの作用とALS2の機能発現の間を詰めていくことが必要である。

F. 健康危険情報

なし

G. 研究発表

1. 論文発表

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H. 知的財産権の出願・登録状況

1. 特許取得　なし
2. 実用新案登録　なし
3. その他　なし

III. 研 究 成 果 一 覧

研究成果の刊行に関する一覧表

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